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3.4

Social Infrastructure

3.4.1 Education

The improvement of educational services in Badakhshan has already been left behind the plans because of obstacles which should be reduced before more effective educational programmes can be implemented. One of these obstacles is the difficulty in getting qualified teachers willing to work in remote areas, another obstacle is that the poorest families especially need their children at home as working power.

Therefore, the development of educational services should also be concentrated in the pilot development areas so that the Afghan experts needed in the development centres could have their children at school.

In practice, this means that in the first phase families with children of school age should not be transferred to Badakhshan. In the next phase, transport of the children to schools in Faizabad should be considered. Later on, the educational services in the development centres should be developed according to actual needs.

Foreign experts with families should live part time in Kabul, where their children could go to school. Later on it might be possible to organize primary level training also in Badakhshan by using e.g. wives of experts as teachers.

When thinking about education as a basis for socio-economic development in Badakhshan, the establishment of a training centre for vocational training should have high priority, because no vocational schools are included in the governmental 7-year development plan for Badakhshan. In the present stage, it will also be easier to implement short training courses instead of regular school type vocational training in Badakhshan.

The proposed activities of the Agricultural Training Centre are described under project no. 0.2.2, page 23.

3.4.2 Public Health

In this report, the development of public health services is considered to be a human aid action rather than a prerequisite for socio-economic development. Therefore, the health services needs have not been prioritated against the needs of the physical infrastructure and productive activities.

A treatment programme for opium addicts in Badakhshan elaborated by the UNFDAC, is, however, included in this report as project no. 8. This programme ensures a good basis for the future development of health services in Badakhshan.

A description of the opium addicts problem can be found at page no. 34 in Volume I.

SOCIO-ECONOMIC SURVEY OF BADAKHSHAN

SUMMARY OF THE PROPOSALS FOR PROJECTS AND PROGRAMMES

Project class (No.)	NAME	CAPITAL INVESTMENT		CURRENT COSTS YEARLY	
		Afs	\$	Afs	\$
0.	ORGANIZATION				
0.1	Advisory Unit for the Governor			9 150 000	183 000
0.2	Badakhshan Rural Development Centre	30 000 000	600 000	24 000 000	480 000
	Total, organization	30 000 000	600 000	33 150 000	663 000
1.	HOUSING PROGRAMME	60 000 000	1 200 000	-	-
2.-4.	PHYSICAL INFRASTRUCTURE x)	352 750 000	7 055 000	-	-
5.	BASIC SURVEYS xx)	4 400 000	88 000	-	-
6.	AGRICULTURE AND RELATED FIELDS xx)	31 350 000	627 000	101 450 000	2 029 000
7.	OTHER PRODUCTIVE ACTIVITIES xx)	3 050 000	61 000	800 000	16 000
8.	PUBLIC HEALTH SERVICES	25 000 000	500 000	15 000 000	300 000
	TOTAL COSTS OF THE PROPOSED PROJECTS AND PROGRAMMES	536 550 000	10 731 000	183 550 000	3 671 000

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According to summary on x) page No. 13

xx) page No. 14

High class main road from Faizabad to Baharak is not included in this summary.

SOCIO-ECONOMIC SURVEY OF BADAKHSHAN
SUMMARY OF PROPOSALS FOR PROJECTS AND PROGRAMMES
PHYSICAL INFRASTRUCTURE

No.	Project name	Earliest start	Capital investment		Roads, km.
			Afs.	US\$	
2.1	RDD and World Food Programmes	started	separate	budgets	undefined
2.2	Road Improvement from Keshem to Artin Jelaw	1977	20 000 000	400 000	38
2.3	Road Maintenance and Improvement Programme	1977	39 000 000	780 000	(670)
2.4	Feasibility Study, Air Transports	1977	900 000	18 000	
2.5	Road Surveys	1977	20 500 000	410 000	
2.6	Bridge at Arka Keslak	1978	10 000 000	200 000	
2.7	Feeder Road to Ragh	1980	90 000 000	1 800 000	45
2.8	Low Class Road from Artin Jelaw to Faizabad	1980	100 000 000	2 000 000	42
2.9	Low Class Road from Faizabad to Baharak	1980	60 000 000	1 200 000	40
2.10	Site Surveys, Air Strips	1978	1 300 000	26 000	
3.1	Telephones to Artin Jelaw	1978	4 100 000	82 000	
3.2	Telephones to Baharak	1978	2 100 000	42 000	
4.1	Electrification, Short Term	1978	2 250 000	45 000	
4.2	Feasibility Study, Hydel Power Station	1977	2 600 000	52 000	
	Total Capital Investment		352 750 000	7 055 000	
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2.13	Main Road from Faizabad to Baharak, later	not before 1984	200 000 000	4 000 000	

LIST OF PROPOSALS FOR PROJECTS AND PROGRAMMES

BASIC SURVEYS AND PRODUCTIVE ACTIVITIES

Project No.	Name	Earliest start	Capital investment Afs.	investment US\$	Current costs Afs.	yearly US\$
5.	BASIC SURVEYS					
5.1	Census of Sedentary and Nomad Animals	1977	3 700 000	74 000	-	-
5.2	Animal Health Survey	1977	500 000	10 000		
5.3	Botanical Investigation of Pasturelands	1977	200 000	4 000	-	-
	Total		4 400 000	88 000	-	-
6.	AGRICULTURE AND RELATED FIELDS					
6.1	Winter Feeding of Animals	1977	12 000 000	240 000	6 100 000	122 000
6.2	Small Scale Irrigation Schemes	1977	15 000 000	300 000	5 000 000	100 000
6.3	Vaccination Programme, Animals	1978	150 000	3 000	3 000 000	60 000
6.4	Use of Dips and Sprayer Systems	1978	500 000	10 000	550 000	11 000
6.5	Development of Veterinary Services	1978	2 800 000	56 000	25 000 000	500 000
6.6	Development of Extension Services	1978	900 000	18 000	1 000 000	20 000
6.7	Experiments, Crop Production ^{x)}	1977	-	-	-	-
6.8	Afforestation Programme	1977	-	-	60 800 000	1 216 000
	Total		31 350 000	627 000	101 450 000	2 029 000
7.	OTHER PRODUCTIVE ACTIVITIES					
	Handicrafts Marketing Promotion	1976	-	-	800 000	16 000
7.2	Feasibility Study, Peat and Hot Springs	1977	1 750 000	35 000		
7.3	Feasibility Study, Fruit Conserving	1977	850 000	17 000		
7.4	Survey of Tourist Potential	1977	450 000	9 000		
	Total		3 050 000	61 000	800 000	16 000
	x) included in the budget of the A.T.C.					

3.8

Summary of manpower requirements needed for road improvement programmes

The labour force requirements of main road construction are shown in chapter Roads and Transport, Volume III, page 164.

For feeder road construction the construction crew should be developed from the maintenance crew increasing the labour working in different functions taking into account the machinery and equipment available.

The following functions should be taken into account when considering construction groups:

- road work (cut and fill)
- road bed material preparation
- concrete construction
- masonry work
- transport

The personnel needed for construction work are as follows:

- engineer	1
- office personnel	6
- foremen	8
- skilled labour	30
- unskilled labour	<u>100</u>
Total	<u>145</u> ===

Maintenance crew to be set up at Baharak will consist of the following personnel:

- foreman	1
- explosives expert	1
- driver	1
- driller driver	1
- labourers	<u>20</u>
Total	<u>24</u> ===

3.9

Summary of advantages

3.9.1 Physical Infrastructure

The development of the physical infrastructure has mainly been considered as a prerequisite for any kind of development in Badakhshan. However, the improvement of transport and communication will have a remarkable impact on the economy as a whole by reducing transport costs and giving the people better opportunities to make use of the natural potential of Badakhshan by increased trade with other parts of Afghanistan. The positive effects will be numerous, but calculations in figures at this stage are impossible to work out.

3.9.2 Productive activities

Agriculture

In small scale irrigation, up to 40 per cent return on investment (ROI) can be achieved, and, in addition, the safety factor is remarkably better than in dry land farming. Advantages expected by improvement in dry land farming are extremely difficult to estimate, the results being mainly dependent on weather conditions also if improved methods are implemented.

Animal Husbandry

Winter feeding of animals in an emergency action, where large losses are to be avoided by a marginal increase in feeding costs. Therefore, if successfully implemented, this project should give a high return on investment. Theoretically, the return could be several times the investment every year. In practice, however, the reliability of this calculation must be proved by experience.

Also the other programmes proposed within animal husbandry are expected to give a good return on investment. Direct and indirect losses caused by diseases will be avoided. The quality and quantity of meat, leather and wool will be improved. As a whole, a 50 to 100 per cent increase in income from animal husbandry is not an unrealistic long-term expectation.

The afforestation programme gives a good return but has a long-term impact. The qualitative advantages in this context should not forgotten.

Other productive activities

All non-agricultural productive activities have a long-term impact, especially since mainly studies and surveys are proposed in this phase. Anyhow, the advantages, over the long term, can be expected to be of essential importance when thinking about the future economic growth of Badakhshan. People who are now employed by the W.F.P. can only be productively employed in new industries. On the other hand, especially in the fruit conserving industry, local natural resources can be exploited which means double impact.

PROJECT

No.

- | | | | |
|------|---|-----|---|
| 0.1 | The Advisory Unit for the Governor | 5.1 | Census of Sedentary and Migrating |
| 0.2 | Badakhshan Rural Development Center | | Population and Livestock in Regions Adjacent |
| 1. | Housing Programme | | to Major Grasslands |
| 2.1 | WFP and RDD Road Construction Programmes | 5.2 | Animal Health Survey |
| 2.2 | Road Improvement, Keshem-Artin Jelaw | 5.3 | Botanical Investigation of Pastures |
| 2.3 | Road Maintenance and Improvement | 6.1 | Winter Feeding of Animals |
| 2.4 | Feasibility Studies, Air Transport | 6.2 | Small Scale Irrigation Schemes |
| 2.5 | Road Surveys | 6.3 | Vaccination Programmes |
| 2.6 | Bridge over Kockha | 6.4 | Use of Dips and Sprayer Systems |
| 2.7 | Feeder Road to Ragh | 6.5 | Development of Veterinary Services |
| 2.8 | Low Class Road from Artin Jelaw to Faizabad | 6.6 | Improvement of Extension Services |
| 2.9 | Low Class Road from Faizabad to Baharak | 6.7 | Experiments, Crop Production |
| 2.10 | Site Surveys, Air Strips | 6.8 | Afforestation Programme |
| 2.13 | Main Road from Faizabad to Baharak | 7.1 | Handicrafts Marketing Promotion |
| 3.1 | Telephones to Artin Jelaw | 7.2 | Feasibility Study, Utilization of Hot Springs |
| 3.2 | Telephones to Baharak | | and Peat Resources |
| 4.1 | Electrification, Short-Term | 7.3 | Feasibility Study, Fruit Conserving |
| 4.2 | Feasibility Study, Hydel Power Plant | 7.4 | Survey of Tourist Potential |
| | | 8. | Treatment Programme for Opium Addicts |

1.
INTRODUCTION The full Report consists of three volumes, viz.

Volume I	Main Report
	Maps and Tables
Volume II	Proposals for Development
	Projects and Programmes, and
Volume III	Sectoral Reports

The main report presents the inventory of resources and potentials in Badakhshan, captered district by district. In the main report, also, conclusions have been drawn from the inventory, and an outline for a development plan has been designed.

More detailed information on the prevailing situation in Badakhshan, and on its development potentials, has been presented in the sectoral reports, Volume III.

In this volume, therefore, only a short reasoning is presented as to WHY THESE projects and programmes have been proposed and WHY IN THIS SPECIFIC PRIORITY ORDER.

2.
THE METHOD USED IN THE PRIORITATION

2.1
A short summary of the Prevailing Situation

The main obstacle to economic and social development in Badakhshan is its isolation from the outside world resulting from:

- the remoteness of the province
- the severe relief
- the severe climate, and
- the dispersion of the population

There are no roads, only about 670 km motorable tracks in bad condition. Most of Badakhshan is accessible only by animal transport or on foot. The Road maintenance is carried out without machinery, using extremely simple hand tools and bare hands.

The telecommunication system is almost nonexistent, and also the existing system is extremely unreliable.

There are four short air-strips, but flight connections are irregular. Access to the airports is also difficult because of the lack of roads.

This means among other things, that as a result of high transport costs and lack of alternatives, the selling prices of Badakhshan products are low and the purchase prices, paid by the Badakhshi, high.

Project No.: 0.1

Project Name: The Advisory Unit for the Governor

Definition of the functions:

This organizational unit has been designed according to Alternative I in the basic development organization, where the main implementing organization is the existing one, viz. the Governor and his staff.

The Governor, as the representative of the Central Government, is sufficiently powerful and his channels of command are easy to use for the effective implementation of development plans also. But, on the other hand, the qualifications of an administrative leader can seldom be suitable for the evaluation and prioritization of development projects and programmes.

The Governor therefore, needs an advisory unit for this purpose.

This unit should function as personal advisor to the Governor.

In its advisory role, however, the unit could and should work in close co-operation with other experts, Afghan and foreign. Close contacts with the Ministries in Kabul, especially the Ministry of Planning, would be of the utmost importance.

The objectives of the Advisory Unit:

The main objectives of this unit should be as follows:

- 1) To collect, file and up-date basic data needed for development planning. In this function, the advisory unit should co-operate with the Director General of the Central Statistical Office in Badakhshan.
- 2) To design and execute basic research programmes needed for development planning and evaluation. For soil and water tests etc. a laboratory should be at the disposal of the advisory unit.
- 3) To evaluate development projects and programmes in progress, and to make suggestions for alterations when needed.
- 4) To design and prioritize new development projects and programmes.
- 5) To assist the Governor to make an allocation of existing development resources and in the procure-

ment of new resources, including the recruitment of personnel.

Resources needed

<u>Man power</u>	Development Economist		
	Assistant Development Economist		
	Agro-economist		
	Sociologist		
	Head of a laboratory		
	Secretary		
	Laboratory personnel (2)		
<u>Yearly Costs</u>		<u>Afs/year</u>	<u>US\$/year</u>
	3 Foreign Experts	7 500 000	150 000
	3 Volunteers	1 050 000	21 000
	2 Afghan Officers	120 000	2 400
	Personnel costs	8 670 000	173 400
	Office expences	100 000	2 000
	Transport costs	250 000	5 000
	Laboratory costs	100 000	2 000
	Total yearly costs	9 120 000	182 400

Duration 5 years with possible extension.

Responsibility

The Rural Development Department, Prime Minister's Office.

Project No.: 0.2

Project name: B.A.R.D.

Location: Dast-i-Feraq, Baharak

Definition: B.A.R.D. is an abbreviation of Badakhshan Rural Development Center. The BARD is meant to be the main means for the development of the resources needed for the Rural Development Procedure.

The BARD would consist of the following three main units:

- 0.2.1 The Co-operative Development Center
- 0.2.2 The Agricultural Training Center, and
- 0.2.3 The Handicrafts Promotion Center

The duties and functions of the BARD

0.2.1. Co-operative Development

At the present time no agricultural co-operatives exist in Badakhshan province, but there seems to be a clearly felt need for the establishment of co-operatives. The functions to such co-operatives may be described as follows:

1. Purchase: of most important and commonly used implements and commodities/sale of these articles.

1. Tested seed
2. Chemical fertilizers
3. Insecticides, herbicides, other plant protection material and equipment
4. Animal feedstuff
5. Agricultural hand tools, oxen tools and equipment
6. Spare parts for most commonly used tools and equipment
7. Medicine, drugs for livestock
8. Other implements, commodities necessary for agricultural and forestry operations

2. Sale of cash crop products, forestry products.

1. Cereals
2. Certain less perishable vegetables, potato
3. Dried fruits
4. Wool, skins, hides
5. Cotton
6. Meat
7. Other agricultural products
8. Peat (if feasible)
9. Forestry products

3. Sale of other materials such as construction materials, salt
4. Easing the financing of agricultural/forestry undertakings/projects. This should later on lead to the establishment of a co-operative credit/savings bank.
5. Development of quality control.
6. Establishment of a multi-purpose tractor and other equipment pool.

0.2.2

Agricultural Training

An Agricultural Training Centre is a combination of a demonstration and experimental farm and a school-type permanent training centre for all the most important rural occupations. Due to the fact that most people in Badakhshan earn their living from agriculture, the main emphasis of activities is agricultural. The A.T.C. operates in close contact with the Agricultural Extension Department and the Rural Development Department (R.D.D.), in fact as a tool for these organizations. The Training Centre cannot and does not act as a substitute either for the extension services or for any long-term educational institution, but is an additional asset in the combat against ignorance and poverty. It would be unrealistic to suppose that it alone could accomplish very much, but, integrated with other projects and programmes, it could be a valuable undertaking especially within areas having specific problems such as opium poppy growing, or areas suffering from extreme poverty (Wakhan, Darwaz). It can be developed in to a nucleus of innovations which can then be adapted gradewise by early adopters and followed and diffused by the majority of their fellow farmers.

The typical working methods of the A.T.C. will be as follows:

- 1) Short-term courses of duration of 2 to 4 days. One major subject and possibly one minor subject should be treated only (for instance: How to grow irrigated alfalfa = major subject; how to afforest small river side gulley = minor subject). In the evenings film shows and other entertainment programmes should be arranged. Instruction should be as demonstrative and practical as possible including many field trips, excursions, practical work etc. There is a great philosophical saying: "Seeing is believing". This is a true statement in respect of farmers. Farmers are sometimes difficult to satisfy and work with because they expect immediate return on any investment. The programmes must economically, socially and traditionally be at a level which fits into the normal village way of life, just one step ahead!

The instruction, accommodation and food should be provided at a nominal fee.

- 2) Long-term courses, when applicable for early school leavers, co-operative executives etc. These might be more theoretical by nature and might lead to a diploma certificate level.
- 3) Meetings, field days, "open door" days, seminars, conferences of duration from 1 to 2 days.
- 4) Entertainment events for the local people.
- 5) Personal guidance to "clientele" coming to the A.T.C. for advise.

0.2.3 Handicrafts Promotion

The main activities of the Handicrafts Promotion Centre should have the following objectives:

1.

Metal Works

- 1.1 To arrange on-the-job training courses for local blacksmiths in more sophisticated techniques such as cutting and welding.
- 1.2 To buy, produce, store and sell spare parts for machines and equipment used in Badakhshan.
- 1.3 To loan machine capacity to local blacksmiths and sell them machine-made parts for locally produced equipment.
- 1.4 To develop new agricultural implements, tools and other metal products feasible for local use. This product development should be carried out in close co-operation with experts in other industrial sectors available in Badakhshan.

For these purposes, the Centre should be equipped with a complete series of basic metal working tools and machines. In the very beginning, however, it should be kept in mind, that only a few kilowatts of electrical power will be available at the centre, and that the electrification of the whole province will probably take a long time.

The Paktia Development Centre in Gardez, financed by the German Bilateral Aid, can be used a Pilot Project. It may also be possible to buy some equipment from this Centre.

2.

Wool, Cotton and Leather Handicrafts

- 2.1 To take care of the handicrafts marketing function in co-operation with Handicrafts Emporium in Kabul. See also project No. 7.1.
- 2.2 To develop a quality control and classification system for both raw materials and ready-made products.
- 2.3 To take care of the business and handling of raw materials, when proper handling is not possible to develop locally.
- 2.4 To organize co-operation with factories outside Badakhshan, when found feasible (e.g. weaving of unfinished cloths in Badakhshan).

- 2.5 To develop new products suitable for sale outside Badakhshan.
- 2.6 To organize the information flow and training courses needed for the creation of an active development.

3.
Other Productive Activities

- 3.1 To develop and organize, in close co-operation with the Agricultural Training Centre, other productive activities found necessary and/or feasible in Badakhshan. Such activities could be e.g. the production of silk, medical plants, wood, fruits, walnuts, cumin etc.

Also production of well rings, tubes and elements of concrete should be started according to the needs of the development of other sectors.

4.
Phases of Implementation

- 1. An Advisory Unit for the Governor of Badakhshan should be formed before the start of the BARD.
- 2. The Advisory Unit should prepare an operational plan for the formation of the BARD. This plan should be presented to the RDD by the Governor.
- 3. The president of the BARD together with an advisor and a secretary should be recruited and provided with provisory offices in Kabul and Faizabad and also with transport facilities.
- 4. The president should take care of further planning, recruitment of additional personnel and the implementation of plans.

Capital Investment

<u>1st Year</u>	Afs	US\$
1 Jeep	355 000	
Equipment	100 000	
Total	455 000	9 100
 <u>2nd Year</u>		
Construction of the A.T.C. (Appendix No.1)	7 100 000	
Working Capital	10 000 000	
Total	17 100 000	342 000

<u>3rd Year</u>	Afs.	US\$
Construction of the H.P.C. 500 m ² @ 3 000 Afs	1 500 000	
Inventory	500 000	
Machinery and Vehicles	5 000 000	
Working Capital	5 000 000	
Total	12 000 000	240 000
Total Capital Investment	29 555 000	591 100
	=====	=====

N.B. The housing programme for the development personnel has been presented separately as Project No.1.

Current Yearly Costs

<u>1st Year</u>	Afs.	US\$
Salaries, President, Advisor and secretary	3 000 000	60 000
Transports	200 000	4 000
Offices	200 000	4 000
Other expenses	100 000	2 000
	3 500 000	70 000

<u>2nd Year</u>		
As per 1st Year	3 500 000	70 000
Expert, Animal Husbandry	2 500 000	50 000
Expert, Crop Production	2 500 000	50 000
Expert, Forestry	2 500 000	50 000
Operating Costs (Appendix No.2)	2 000 000	40 000
	13 000 000	260 000

<u>3rd Year</u>		
As per 2nd Year	13 000 000	260 000
Expert, Handicrafts Marketing	2 500 000	50 000
Expert, Metal Works	2 500 000	50 000
Counterparts	150 000	3 000
Additional expenses	250 000	5 000
	18 400 000	368 000

<u>4th Year</u>		
As per 3rd Year	19 000 000	380 000
Expert, Leather Handicrafts	2 500 000	50 000
Expert, Woollen Handicrafts	2 500 000	50 000
Counterparts	150 000	3 000
Additional expenses	350 000	7 000
	23 900 000	478 000

5th to 9th year as 4th year.

Duration: 10 years together with the formation of the Advisory Unit for the Governor.

Responsibility:

The Rural Development Department, Prime Minister's Office, together with the Governor of Badakhshan.

APPENDIX NO.1
Project No.0.2

CAPITAL INVESTMENT IN THE A.T.C.

Construction of buildings

1. Administration building

1. Principal and farm manager 1 room 26 m²
2. Vice-principal assistant farm manager 1 room 15 m²
3. Foreman and office personnel 1 room 20 m²
4. Experimental/science block large possibly scenery type block

1. Crop husbandry & irrigation	5 m ²
2. Animal husbandry	5 m ²
3. Horticulture	5 m ²
4. Pasture	5 m ²
5. Forestry	5 m ²
6. Rural sociology	5 m ²
7. Home economics	5 m ²
8. Library	30 m ²
9. Soil and feedstuff laboratory	30 m ²
total	150 m ²
10. Lavatory, shower, spare space	20 m ²
grand total	170 m ²
ā	3 000 Afs total 510 000 Afs

2. Kitchen/diningroom building

1. Kitchen capacity for 30 persons & staff 60 m²
2. Diningroom capacity for 50 diners and additional space for 50 temporary guests (seats only) 150 m²
3. 6 storerooms 30 m²
4. Coldstorage 5 m²
5. Staff (rest)room 15 m²
6. Lavatories, showers etc. 5 m²
| grand total | 265 m² |
| ā | 2 500 Afs total 662 500 Afs |

3. Classroom/demonstration theatre building

1. Classroom capacity 30 students 80 m²
2. AV-room combined with teachers' room 15 m²
3. Guest room 10 m²
4. Lavatories 5 m²
| grand total | 110 m² |
| ā | 2 500 Afs total 265 000 Afs. |

4. Dormitory building (or group of houses representing various kinds of low cost houses which the students would be able to copy)

In addition, the people living in eastern and northern Badakhshan use opium as a part of their daily diet. The Government has reduced the supply of opium, which has again resulted in higher prices.

It would appear, that, but for the difficulties mentioned above, Badakhshan could be self-sufficient in foodstuffs and also create a surplus production.

The natural resources do not seem large, but some of them can be developed, at least for local use.

The main natural resource is water, which facilitates the irrigation of agricultural lands and, in the long term, is also a good source of energy.

The approximately 1/2 million people of Badakhshan seem to be very willing to work hard. Their friendliness and hospitality are famous. The level of education is probably the highest in Afghanistan. The level of illiteracy is the lowest in Afghanistan, in fact at least in the center, Faizabad, nearly 20 per cent of the people can read and write.

On the other hand, it should be understood that the Badakhshi have had bad experience of outsiders, so that it is not easy to convince them of the good intentions of experts coming from outside Badakhshan.

When considering socio-economic development in Badakhshan, an important factor that retards it is the incapability of the administrative organization to create development projects and programmes and/or implement them.

The most important potential to be developed is the basic traditional industry, agriculture and related fields.

2.2

A short outline of the Development Plan

The prevailing situation calls for immediate action, especially in the most remote areas. The first goal should be to increase self-sufficiency within Badakhshan. However, the obstacles to a fast economic growth are considerable, and, therefore, only minor emergency actions are possible immediately.

As prerequisites for socio-economic development in Badakhshan, two main measures must be taken, viz.

- a) A creative and implementing Development Organization must be formed.
- b) The physical infrastructure, that is transport and telecommunication, must be improved. Also proper

1. 15 bedrooms á 10 m ²	150 m ²
2. Lavatories, showers	15 m ²
3. Storeroom	10 m ²
	grand total 175 m ²
	á 2 000 Afs total 350 000 Afs.

5. Farm building compound

1. Garage for 2 tractors, 1 jeep, 1 lorry with repair space/pit and crane 50 m²
 2. Shelter for tractor mounted/equipment and machinery 50 m²
 3. Shelter for oxen-drawn equipment 20 m²
 4. Store room for hand and machine tools, spare parts etc. 50 m²
 6. Store room for fertilizers, insecticides, herbicides 30 m²
 7. Dairy farm compound with stores for hay silage etc. 350 m²
(can be located separately for flies, manure)
- grand total 600 m²
á 1 000 Afs total 600 000 Afs.

	Afs	US\$
Total buildings	2 397 500	47 950
	=====	=====

Inventory

1. 3 typewriters á 9 000 Afs	total	18 000 Afs.
3 calculators á 12 000 Afs	"	36 000 "
Other office machines auxilliary	"	45 000 "
2. 12 chairs and desks for teachers		
á 1 000 Afs	"	120 000 "
1 meetingroom table and 12 chairs		5 000 "
Book shelves 40 á 1 000 Afs	"	40 000 "
10 chairs and tables for library		
á 560 Afs	"	5 600 "
10 laboratory desks and chairs		
á 1 500 Afs	"	14 000 "
Office furniture		8 000 "
30 chairs and desks for classroom		
á 560 Afs	"	16 800 "
30 chairs and 3 diningtables		
á 600 Afs and 3 500 Afs	"	19 500 "
70 extra chairs for dinighall		
á 600 Afs	"	42 000 "
30 shelves for cloth á 400 Afs	"	12 000 "
10 metal drawers á 8 000 Afs	"	80 000 "
3 blackboards á 200 Afs	"	600 "
10 shelves for kitchen á 2 500 Afs	"	25 000 "
1 coldstorage		200 000 "
Other kitchen equipment	"	100 000 "

3. Soil and foodstuff laboratory			total 100 000 Afs	
Books for library 100 books				
(basic textb.)		"	50 000	"
4. 1 tractor & basic equipment			720 000	"
1 lorry			860 000	"
1 jeep			355 000	"
4 motorcycles		"	170 300	"
6 bicycles á 2 100 Afs		"	12 600	"
Hand tool equipment (carpentry,				
masonry, metal work, welding:				
(oxy-acetylane)		"	75 000	"
Work shop equipment (repair, service				
of machines etc.)		"	150 000	"
Pest, disease control equipment,				
sprayers		"	30 000	"
Irrigation equipment		"	15 000	"
Harvesting, storage equipment		"	30 000	"
5. Dormitory furniture etc.		"		
30 mattresses, pillows and beds & linen			120 000	"
6. Other materials, equipment, tele-				
phones etc.		"	100 000	"
7. Farm livestock				
5 milking cows	á 7 000 Afs	"	35 000	"
3 heifers	á 5 000 Afs	"	15 000	"
5 calves (own supply)				
10 ewes	á 3 000 Afs	"	30 000	"
1 ram	á 4 000 Afs		4 000	"
15 lambs (own supply)				
15 goats	á 2 000 Afs	"	30 000	"
4 oxen	á 10 000 Afs	"	40 000	"
2 horses	á 10 000 Afs	"	20 000	"
20 laying hens	á 100 Afs	"	2 000	"
20 broilers, chicken	á 50 Afs	"	1 000	"
5 beehives	á 9 000 Afs	"	45 000	"

	Afs	US\$
Total Inventory	3 689 600	73 792
	=====	=====

8. Land area	
1. Demonstration plots 2 000 m ² (sample collection	
right for students and visitors)	
2. Demonstration/experimental farm	
(under crops)	irrigated 5 - 10 ha
(if applicable divided into	
2 to 2 subfarms, representing	
typical farming pattern in	
vicinity)	nonirrigated 5 ha
	(dry farming)
3. Orchard and orchard nursery	1 - 2 ha
4. Vegetable garden	0,5 ha
5. Forest nursery & arboretum	1 - 2 ha
6. Pastures, cultivated, improved	5 ha
7. Pastures, natural	10 ha
8. Forest land 10+10+10+10+10 (progressive	
dev.)	50 ha
9. Roads, yards etc.	2 ha
grand total	79 - 87 ha

Available in Baharak		65 ha
65 ha á 15 000 Afs		975 000 Afs.
	Afs	US\$
Total, Land Area	975 000	19 500
	=====	=====

APPENDIX NO.2

Project No.0.2

Operating Costs of the A.T.C.

Personnel/staff salaries, per diem/year	Afs.
1. Principal, farm manager rank 3 B.Sc. crops & econ.	53 400
+ 50 % salary increase	26 700
per diem 50 days	9 400
2. Vice principal, assistant farm manager rank 4 B.Sc	
pasture & animal husb.	39 000
+ 50 % salary increase	19 500
per diem 75 days	9 750
3. Foreman rank 5 12 grade vocational school	33 000
+ 50 % salary increase	16 500
4. Farm labourers 10-15 grade 8 (average 7)	109 200
5. 3 tractor/lorry/jeep-drivers grade 5	77 400
6. Animal husbandry officer rank 5 B.Sc.	35 400
+ 50 % salary increase	17 700
per diem 100 days	11 800
7. Horticulture & sericulture officer rank 5 B.Sc.	35 400
+ 50 % salary increase	17 700
per diem 100 days	11 800
8. Forestry management officer rank 5 B.Sc.	35 400
+ 50 % salary increase	17 700
per diem 100 days	11 800
9. Rural sosiologist & co-operative expert rank 5 B.Sc.	35 400
+ 50 % salary increase	17 700
per diem 100 days	11 800
10. Clerk & accountant rank 6 business examination	30 000
+ 50 % salary increase	15 000
11. Cook several years experience grade 6	22 800
+ 50 % salary increase	11 400
12. 2-3 cook's assistants grade 8 (3)	46 800
13. 2 cleaners grade 11	22 560
14. 3 night watchmen grade 11	33 840
15. 3 mechanics rank 6 12 grade vocational school	90 000
+ 50 % salary increase	45 000
Fuel. electricity, telephone, stationary, library costs	257 000
Farm operating costs (fertilizers, seeds, insecticides etc.)	230 000
Meals for students (free of charge?)	54 000
Unclassified costs	423 250
	Afs. US\$
Total yearly current costs	2 000 000 40 000
	=====

Project No. 1.

Project name Housing Programme

Location Artin Jelaw and Baharak

Definition In Badakhshan, there are only two hotels suitable for the accommodation of development experts, one in Keshem and one in Faizabad. Also these hotels are only suitable for short-term experts without families. All the housing facilities needed for new personnel starting work in Badakhshan must therefore be built before the experts and officials can begin their work.

To begin with, two new hotels must be built, one in Artin Jelaw for the road construction personnel and one in Baharak for the personnel going to work in the Badakhshan Rural Development Centre.

These hotels should also function as recreation centres for permanent experts and officials.

The number of houses needed and the time schedule are estimated according to the needs of personnel in other projects and programmes proposed in this report. This project is thus not meant to be implemented separately, but only in connection with the implementation of development projects and programmes.

It is proposed that a house type suitable for local weather conditions should be surveyed and planned. In this programme proposal, a standard substantial institutional type building to be constructed using stone with galvanised sheet metal roof with electricity, water and sewerage has been used as a model. This type of house would cost about Afs. 1 500/m³ or Afs. 4 500/m² (roughly US\$ 100/m²). As standard size, 100 m² per house has been used.

<u>Capital investment</u>	Afs	US\$
Staff Houses in		
Baharak and Artin Jelaw	7 500 000	150 000
Community Planning	2 500 000	50 000
100 houses during 5 years	<u>50 000 000</u>	<u>1 000 000</u>
Total capital investment	60 000 000	1 200 000
	=====	=====

Project No. 2.1.

Project name WFP and RDD Road Construction Programmes

Location Badakhshan

Definition The World Food Programme

According to the Governor of Badakhshan and the Director General, RDD, Badakhshan, the following programme should be accomplished in Bahakhshan in the year 1977-1978 by the WFP:

WAKHAN	90 000	man days
DARWAZ	10 000	"
SHEGHNAN	5 000	"
KHWAHAN	10 000	"
BAHARAK	108 000	"
ESHKASHEM	216 000	"
JURM	15 000	"
KESHEM	20 000	"
KERANO MENJAN	1 000	"
Total	475 000	man days
	=====	

The corresponding projects have been designed locally.

To Darwaz, Sheghnan and Khwahan, at least a part of transport should be arranged by flight either from Kunduz or from Faizabad. The freight should be financed by the WFP.

Quantities to be transported:

DARWAZ	30 tons
SHEGHNAN	15 tons
KHWAHAN	30 tons
Total	75 tons
	=====

The daily ration should be increased by say 20 Afs., and it should contain at least salt and kerosene (for lighting purposes). The rest of the ration should be discussed with the people who are going to work, because needs vary considerably from place to place and from time to time.

The RDD Programme

The RDD will draw up its own plan of operation and budget. The work done by the RDD should be strongly supported, because this is a cheap and effective way of improving roads.

For the needs of the RDD, the road maintenance team which it is proposed to be established in Baharak should also be equipped with simple blasting equipment.

The RDD Badakhshan also needs more technicians for the supervision of the projects. This could be done by arranging training courses in Badakhshan.

The Project Objectives

1. To help the people by giving them employment and access to commodities not available in their residential areas at reasonable prices.
- 2 To improve the quality of roads in areas, where more sophisticated techniques can not be used because of the limited resources available.

Costs

	Afs.	US\$
475 000 man days 70 Afs. each	= 33 250 000	665 000
Air Freight 75 tons 3 000 Afs/ton	= 215 000	4 300
Total	33 465 000	669 300
	=====	=====

Air freight has been calculated according to prevailing rates, which have already been subsidized. The real freight in this case might be higher, so it should be negotiated with the Bakhtar Airlines.

The blasting equipment will be included in the capital investment of the maintenance center.

Duration

The programme described above covers only the next budget year 1977-1978. A similar programme should be designed yearly in co-operation with the local people, and this type of emergency action will be needed at least during the next ten years.

Responsibility

The Governor together with W.F.P.
The R.D.D.

Project No. 2.2

Project name Road Improvement, Keshem-Artin Jelaw

Definition Before the road construction machinery can be transported to Artin Jelaw, the bridges on the existing road should be improved.

In this phase, the road base should be improved only in connection with the maintenance programme.

		Afs.	US\$
<u>Costs</u>	Bridges, provisional type	5 000 000	100 000
	Improvement of the base	<u>15 000 000</u>	<u>300 000</u>
	Total capital investment	20 000 000	400 000
		=====	=====

Duration Surveys of the bridge sites and the designing of the bridges could be started in 1977 and the construction of the bridges in 1978. The construction phase would take about one year.

Responsibility

The Ministry of Public Works.

Project No. 2,3.

Project name Road Maintenance and Improvement Programme

Location Badakhshan

Definition The motorable roads at present cover about 670 km. The average condition is poor in respect to the surface, base course and the structures (culverts, bridges etc.). The major part of these roads can be classified as a track or a D according to KAMPSAX, in bad condition. Thus maintenance operations in the initial stage would consist of routine maintenance within which minor improvements can be implemented.

It is suggested that maintenance crews be established and equipped with one flat bottom truck and hand tools. One crew should be established per each 100 km of road to be maintained the crew should consist of one foreman and about 20 workers. Base camps should be constructed for each crew. These crews should be established stagewise according to funds available. The performance of the pilot crews should be evaluated in order to work out guidelines for the operation of the additional crews.

In addition, one road construction and improvement center should be established in Artin Jelaw with better machinery and equipment, so road improvement according to Project Nos. 2.6 to 2.9 could be started. This equipment could then also be used for maintenance purposes in emergency situations.

Project Objectives

1. To keep the existing road from Keshem to Faizabad in a motorable condition.
2. To improve the roads according to Project Nos. 2.6 to 2.9.

Phases of Implementation

1. Establishment of a maintenance center in Baharak.
2. Planning of the center in Artin Jelaw.
3. Reservation of the land area needed, and construction of the center.
4. Purchase of the machinery, equipment and inventory.
5. Preparation of an operational plan for the transportation of the machinery. The road between Keshem and Artin Jelaw must partly be improved already before the transport phase. See Project No. 2.2.

6. Transport of the machinery and establishment of the Center,

The last phase should be implemented during late months of summer or fall until the end of November.

Costs

1. Maintenance Team

Capital Investment per each team	Afs.	US\$
Buildings 270 m ² each 2 500 Afs.	675 000	13 500
Inventory	100 000	2 000
Truck	1 000 000	20 000
Rock drill	125 000	2 500
2 moto cycles	130 000	2 600
Tools	250 000	5 000
Working capital	350 000	7 000
Total	<u>2 630 000</u>	<u>52 600</u>
	=====	=====
Yearly Costs (current) per team	600 000	12 000
	=====	=====

2. Road Construction and Improvement Center

Capital Investment	Afs.	US\$
Machinery according to appendix	20 300 000	406 000
Buildings 600 m ²	1 500 000	30 000
Inventory (Telephones, separately, Project 3.1.)	200 000	4 000
Housing 1 000 m ² each 4 500 Afs	4 500 000	90 000
Housings 800 m ² each 3 000 Afs	2 400 000	48 000
Working Capital	5 000 000	100 000
5 jeeps	1 775 000	35 500
5 motorcycles	327 500	6 550
Wireless telphones	250 000	5 000
Total	<u>36 252 500</u>	<u>725 050</u>
	=====	=====

Yearly current costs according to the road improvement projects.

Expert personnel needed

Chief Engineer, Road Construction
 3 Foremen
 Expert in Service and Inventory
 Accountant
 5 Trainers in the use of machinery
 10 Afghan Counterparts

housing and recreation facilities for development experts must be provided.

Most economic activities are dependent on the development organisation and physical infrastructure so that they cannot be prioritated against these two prerequisites.

The implementation of development projects and programmes concerning economic activities will mostly be the responsibility of the new organization.

Also, several additional studies and surveys are recommended.

So, the final prioritation of measures to be taken should also be the responsibility of the new development organization.

Therefore, in this report, only a rough prioritation is made by estimating the high or low impact over the short and long-term.

Because of practical difficulties, the development of the productive activities must mainly be started in certain pilot areas, and then, later on, gradually spread to the remotest areas. In this connection, very much will be dependent on the development of the transport system. Therefore, labour intensive road improvement programmes are recommended to be implemented in the remotest areas.

3

SUMMARY

3.1

The Organization

3.1.1 Alternative I, improvement of the existing organization

The main implementing organizations are:

- The Governor and his staff
- The Prime Ministry (now especially the RDD)

In addition to the existing organization, it is proposed that two additional organizational units be formed, viz.

- 1) An Advisory Unit for the Governor, and
- 2) The Badakhshan Rural Development Center (BARD).

The Advisory Unit should include a research and evaluation function.

The BARD should execute training courses and experiments in agriculture, animal husbandry, forestry, horticulture, sericulture, handicrafts and industries.

The Chief Engineer together with the Accountant and their counterparts should be recruited already before the planning phase, and the preparations before the establishment of the center will take about a year. A jeep is also required from the outset.

Budget for the first year

	Afs.	US\$
2 Experts US\$ 50 000 each	5 000 000	100 000
2 Counterparts	160 000	3 200
Transport costs in Afghanistan	100 000	2 000
Miscellaneous costs	<u>50 000</u>	<u>1 000</u>
Total	5 110 000	106 200
	=====	=====

Duration 5 years with possible extension

Responsibility
The Ministry of Public Works

APPENDIX

To Project No.2.3Rural Road Improvement and Construction EquipmentEquipment for one team

S.No.	Description	No.	Unit cost \$	Total cost \$
1.	Motor grader, 11 500 kg class	1	60 000	60 000
2.	Roller 3 wheel, steel tyred 6/8 ton.	1	20 000	20 000
3.	Tilting trailer for roller transport	1	6 000	6 000
4.	Loading shovel, 85 HP class with dozerblade	1	40 000	40 000
5.	Dump trucks, 4 cu.m.	4	18 000	72 000
6.	Flat bed truck 6 ton. with 1 1/2 ton. crane	1	23 000	23 000
7.	Water pumps, 10 cm with hoses	2	3 000	6 000
8.	Concrete mixers, 5/3-1/2.	2	3 000	6 000
9.	Concrete vibrators, engine- driven	2	800	1 600
10.	Self-powered rock drill and steels	1	2 500	2 500
11.	Servicing and repair tools and welding set	1	5 000	5 000
12.	Pipe moulds, sets 60-150 cm	5	2 000	10 000
13.	Gabions assorted sizes	1 000	25	25 000
Sub Total				\$ 277 100
Spare parts for items 1-10 and welding set 20 % of 240 100				48 020
Sub Total				325 120
Freight and handling at the rate of 25 %				81 280
Total				\$ 406 400 =====
				Afs. 20 320 000 =====

Project No. 2.4

Project name Feasibility Studies, Air Transport

Location Badakhshan

Definition Feasibility study of air transport in the following districts.

Shahr-i-Bozurg
Ragh
Jurm
Eskhashem
Qala-i-Panja
Zarkool

Description of the Project Objectives

To ensure that the large investments needed in the development of transport facilities will be as economical as possible.

Phases of Implementation

1. Shahr-i-Bozurg and Ragh
2. Jurm
3. Eshkashem
4. Qala-i-Panja and Zarkool

<u>Costs</u>	Afs.	US\$
Expert, Air Transport Economist, 3 months	750 000	15 000
Afghan Assistance	100 000	2 000
Local Transports	50 000	1 000
Total	900 000	18 000
	=====	=====

Duration 3 months, summer 1977

Responsibility

Civil Aviation and Tourism Authority.

<u>Project No.</u>	2.5
<u>Project name</u>	Road Surveys
<u>Location</u>	Badakshan
<u>Definition</u>	<ol style="list-style-type: none"> 1. Feeder road alignment from the Kokcha river road to Ragh. 2. Feeder road alignment Artin Jelaw-Dekhan Khana-Faizabad. 3. Main road alignment Faizabad-Baharak.

Description of the Project Objectives

The main objective is to give the people of Badakhshan better transportation services. Employment aspects should be taken into consideration only when local unskilled labour can be used.

The feeder road to Ragh is most important because there are no motorable roads now. Later on, this road should be continued to Khwahan.

Before final decision making, a feasibility study should be made, where also air transport should be taken into consideration. See project No. 2.4.

Phases of Implementatation

1. Feeder road to Ragh
2. Artin Jelaw-Dekhan Khana-Faizabad
3. Faizabad-Baharak

Costs

Field survey and planning requires a team of surveyors as follows:

- Team leader, civil engineer, experience in rural development planning
- Civil engineer, road construction
- 2 Technicians, road construction and soil mechanics
- Auxiliary staff

	Afs.	UU\$
Personnel costs	16 000 000	320 000
Other Costs	4 500 000	90 000
Total	20 500 000	410 000
	=====	=====

Duration

The survey can be carried out in two years and it requires about 80 man months' work.

Time for investigations is adequately available before 1980, when the main road construction reaches Keshem from Kunduz direction. The survey can be started in 1977 and completed in 1979.

Responsibility

The Ministry of Public Works, Road Planning.

Project No. 2.6

Project name Bridge over Kokcha

Location Possibly at Arka Keslak

Definition The bridge should be abt. 4,5 meters broad, but it is impossible to define the lenght prior to a survey.

Description of the Project Objectives

The main objective is to link the northern districts to the central and western districts.

Phases of Implementation

1. Survey
2. Design
3. Construct

Cost The cost would be approximately 15 000 Afs per square meter. So a 150 meter-long bridge would cost approximately 10 000 000 Afs, or 200 000 US\$.

Duration Two to three years, beginning 1978.

Responsibility

The Ministry of Public Works, Road Planning and Road Construction,

Project No. 2.7

Project name Feeder Road to Ragh

Location Kokcha River, possibly Arka Keslak, - Ragh

Definition The definition will be made as a result of project No. 2.5, Road Surveys. The road class is recommended to correspond to KAMSAX C.

Phases of Implementation

Gradually after the bridge according to project No. 2.6 has been constructed.

Costs A tentative cost estimate would be abt. 2 000 000 Afs/km, and in the first phase abt. 45 km of road should be constructed.

	Afs	US\$
Total Capital Investment appr.	90 000 000	1 800 000
	=====	=====

Duration Two to three years, beginning not earlier than 1980.

Responsibility

The Ministry of Public Works, Road Construction.

Project No. 2.8

Project name Low class road from Artin Jelaw to Faizabad

Location Uphill via Dekhan Khana

Definition This road should be built in the class KAMPSAX C, the alignment according to the survey, project No. 2.5.

Description of the Project Objectives

The main road goes along the Kockha river bank and this lower class road serves the needs of the people south from Kokcha. The area to be served is an important agricultural area with a high density of population.

Phases of Implementation

This road could be constructed gradually immediately after the road construction and improvement centre, project No. 2.3, has been established.

A very rough cost estimate would be about 2 500 000 per kilometre, and the alignment is 42 kilometres long. An approximation of the capital investment needed could be:

	Afs.	US\$
40 km 2 500 000 Afs. each	100 000 000	2 000 000
	=====	=====

Duration Two to three years, beginning 1980 - 1981 at the earliest.

Responsibility

The Ministry of Public Works, Road Construction.

Project No. 2.9

Project name Low Class Road from Faizabad to Baharak

Location Badakhshan

Definition This project is an extension of Project No. 2.8 low class road from Artin Jelaw to Faizabad. The existing alignment along the Kokcha River must mainly be followed, so the road will be abt. 40 kilometres long.

The objective is to serve the Baharak and Jurm areas with better transport facilities at least two years before the main road is constructed.

No bigger cuttings or constructions should be made before the survey, project No. 2.5, has been made, to avoid double investments.

Phases of Implementation

After Project No. 2.8.

Costs The cost may be estimated at about one to two million Afs per kilometer, so that the total would be about 40 000 000 to 80 000 000 Afs.

	Afs.	US\$
Capital investment, appr.	60 000 000	1 200 000
	=====	=====

Duration One year, not earlier than 1981.

Responsibility

The Ministry of Public Works, Road Construction.

Project No. 2.10

Project name Site surveys, air strips

Location Badakhshan

Definition Site surveys for air strips in the following areas, after the feasibility study according to project No. 2.4.

Shahr-i-Bozurg
Ragh
Jurm
Eshkashem
Qala-i-Panja
Zarkool

Description of the Project Objectives

To locate sites for air strips suitable for by aeroplanes of type DASH-7, HS-748 or Focker VFW 614, or other planes found to be suitable in Badakhshan. (According to information got from Bakhtar Airlines, propeller driven planes are not suitable for use at high altitudes because of thin air and difficult weather conditions).

Phases of Implementation

According to the weather and road conditions.

Maps on the scale 1:100 000, preferably 1:50 000 should be provided.

<u>Costs</u>	Afs.	US\$
Expert, Airport Engineer, 6 months	1 150 000	23 000
Airport Engineer, CATA, 6 months	60 000	1 200
Routine Assistant, 6 months	30 000	600
Transport Costs, local	50 000	1 000
Total	1 290 000	25 800
	=====	=====

Necessary equipment is available at the CATA without charge.

Duration 6 months, summer 1978.

Responsibility

Civil Aviation and Tourism Authority.

The BARD should also establish a co-operative organization in Badkshshan. The co-operatives should then gradually take over responsibility for the development of economic activities.

The Responsibility for the formation of both the Advisory Board and the BARD should be vested in the Prime Minister's Office, Rural Development Department.

Some aspects that should be taken care of when building up the organization are:

- 1) The responsible organizations should be manned by Afghan, preferably Badakhshi experts.
- 2) Foreign advisors should be used in the most important positions:
 - 2.1. An economist as advisor for the president of the Advisory Unit.
 - 2.2. Agro-economist in the research and evaluation unit.
 - 2.3. Expert in management to advise the President of the BARD.
 - 2.4. Experts in
 - road construction
 - road maintenance
 - the use and maintenance of machines
 - 2.5. Experts in
 - agriculture
 - animal husbandry
 - forestry
 - handicrafts and industries
 - metal works promotion
 - woollen handicrafts promotion
 - leather handicrafts promotion, and
 - co-operative organization development
- 3) All experts should be selected according to qualifications and also capability and willingness to work in remote areas.
- 4) Proper salary incentives and career planning should be implemented, as should proper housing and recreation facilities for all experts, foreign and Afghan.

3.1.2 Alternative II, A separate Development Organization

In this alternative, the existing administrative organization would not be directly responsible for the implementation of the development projects and programmes proposed in this report.

A separate project organization should thus be created for the implementation.

Project No. 2.13

Project name Main road from Faizabad to Baharak

Definition The road built according to Project No. 2.9 should later be improved to the same class as the main road from Keshem to Faizabad, or preferably to a cheaper version of this class.

Costs A tentative cost estimate according to the Russian Class IV would be about 8 000 000 Afs. per kilometre, and about 6 500 000 Afs. per kilometre in a cheaper version of this class.

	Afs.	US\$
60 km á 6 500 000 Afs. each	260 000 000	5 200 000
Less improvement,		
Project No. 2.9	<u>60 000 000</u>	<u>1 200 000</u>
Net total	<u>200 000 000</u>	<u>4 000 000</u>
	=====	=====

Duration One year, not earlier than 1984.

Responsibility

The Ministry of Public Works.

Project No. 3.1

Project name Telephones to Artin Jelaw

Definition 1 line from Keshem to Artin Jelaw
Telephone exchange 5-10 lines
10 telephones

<u>Cost</u>	Afs.	US\$
Line 40 km each, 100 000 Afs.	4 000 000	80 000
Exchange	100 000	2 000
Telephones	20 000	400
Total	4 120 000	82 400
	=====	=====

Duration One year, viz, 1978-1979.

Responsibility

The Ministry of Communications

Nota bene On the initiative from Finnconsult, these telephones have been included in the 7-year development plan of the Ministry of Communications.

Project No. 3.2

Project name Telephones to Baharak

Location Baharak

Definition According to the plan prepared at the Ministry of Communications, a three channel system from Kunduz to Faizabad will be constructed, completion approximately 1978. After that a separate line would be needed to connect the Rural Training Center to be established in Baharak with the telephone exchange in Baharak.

Technical Definition

One direct line	10 km
One line to exchange	10 km
Telephone exchange	5-10 lines
10 telephones	

Description of the Project Objectives

To facilitate the telecommunications needs of the Rural Training Center and its personnel.

Phases of Implementation

1. Lines
2. Exchange
3. Telephones

	Afs.	US\$
<u>Costs</u>		
Line 20 km each 100 000 Afs.	2 000 000	40 000
Exchange	100 000	2 000
Telephones	20 000	400
Total	2 120 000	42 400
	=====	=====

Duration One year, viz. 1978.

Responsibility

The Ministry of Communication.

Nota bene

On the initiative from Finnconsult, these telephones have been included in the 7-year development plan of the Ministry of Communication.

Project No. 4.1

Project name Electrification, Short Term

Definition For the time being, only 2 diesel generators with a total capacity of 94 Kw exist in Badakhshan, located in Faizabad.

Within two years two Micro-Hydel power stations will be constructed in Faizabad city, viz. Bag-Sha 250 Kw and Jozen 255 Kw. After that, the diesel generators could be moved to other district centers.

Short-term electrification programme:

1. Bag-Sha and Jozen 1977 and 1978.
2. Diesel generators to Baharak, Keshem and Artin Jelaw, 50 Kw each, 1978.
3. Distribution networks in these centers, 1977-1978.
4. Feasibility study of the Kokcha River Hydel Power station and large scale irrigation scheme in Jurm to be made before 1983 (5 to 10 Mw potential).
5. Electrification of Saresang mines, Jurm and Baharak with neighbouring valleys and linkage to Faizabad according to the results of the feasibility study, 1983-1984.
6. Electrification of the western districts by a linkage to Takhar during the second 7-year Plan.

Description of the project objectives

1. To provide the most important development centers with electricity.
2. To facilitate a better standard of living and a basis for industrialization in the long term.

Costs

1. Subsidies

Baharak, Artin Jelaw and Keshem should be subsidised by say 4 Afs. per Kwh as long as diesel generators are used:

150 Kw x 5 hrs per day x 360 days = 270 000 Kwh/
year 1 000 000 Afs/year.

2. Investments

	Afs.	US\$
3 diesel generators 500 000 Afs. each	1 500 000	30 000
Distribution networks 6 km 125 000 Afs. each	750 000	15 000
Total	2 250 000	45 000
	=====	=====

Feasibility study: see project No. 4.2.

Duration

1977-1978.

Feasibility study as per project No. 4.2.

Responsibility

The Ministry of Water and Power.

Project No. 4,2

Project name Feasibility Study, Hydel Power Plant

Location Jurm

Definition Some 10 km south of the center of Jurm, the Kokcha River runs in a very steep valley that could be suitable as a site for a Hydro Power Station. The dam could also be utilized for irrigation purposes.

The suitability of this valley for this purpose should be carefully studied, and, if found to be feasible, a preliminary construction plan should be made with manpower and cost estimates and time schedule.

Description of the project objectives

The objective is to find out whether it is possible to build a Hydel Power Station in Jurm, and, if found to be possible, how, when and at what cost.

			Afs.	US\$
<u>Costs</u>	Geologist	3 Months	600 000	12 000
	Power Engineer	2 "	400 000	8 000
	Hydrologist	1 "	250 000	5 000
	Construction Engineer	6 "	1 200 000	24 000
	Laboratorial tests		50 000	1 000
	Afghan Assistance 4 x 3		100 000	2 000
	Total		2 600 000	52 000
			=====	=====

Duration 6 months.

Responsibility

The Ministry of Water and Power.

Project No. 5.1

Project name Census of Sedentary and migrating Population and Livestock in Regions Adjacent to Major Grasslands.

Location Shewa and Dasht-i-Ish.

Relation to Development Strategy Objectives

It is the common interest to obtain more reliable information on the number and kind of animals for general development strategy purposes but also because the traditional pasture rights of the sedentary and semi-sedentary farmers and those of nomads are often conflicting. Since it is the Government's intention to solve this dispute the census would give reliable data for decision-making. It could also give some data in respect of the estimation of the overgrazing problem.

Description of Project Objectives

To determine the number of sedentary and migrating people and livestock utilizing the grasslands seasonally in areas where migrating herdsmen from outside Badakhshan and local farmers come into contact with one another. Both groups claim rights over the grasslands and such claims should be examined in detail. The ecological patterns should be researched before any recommendations are made.

Alternative methods of Survey

1. Counting stations for migrating animals along the main migrating nomads routes, possibly combined with dipping or sprayer system (ref. Dip-up and spayer system project No.
2. Counting stations for migrating animals combined with (compulsory) vaccination clinic and animal health centres;
3. The combination of suggestions 1 and 2.

Implementation

Unemployed high school graduates can be employed and trained to carry out the actual census. The plan should be implemented simultaneously with Project No. 5.2. Stages would be as follows: recruit personnel through the Central Statistical Office; train candidates in data-collecting procedures; examine trainees at end of training; send successful candidates to summer grasslands to collect data; collate the data; make recommendations based on data.

Advantages

1. More accurate picture of the prevailing situation as to number, breed, etc. of livestock.
2. Better possibilities than prior to investigation to estimate livestock in general and the carrying capacity of pastures;
3. More accurate picture of the prevailing situation as to the competition for the grasslands and possible disputes on pasture rights;
4. Successive measures on regulation of number of animals being more realistic and feasible.

Costs

1.

Construction of one observation station with possible extension to vaccination clinic and animal health center

	Afs.	US\$
1) 150 m ³ each 900 Afs.	135 000	2 700
2) Furniture, equipment, etc.	40 000	800
Capital investment	175 000	3 500
	=====	=====

2.

Operation costs

1) Salaries of two observers, supervisors, rank 8, 5 months + 50%	29 850	597
2) Per diem of two observers	29 850	597
3) Salaries of 40 unemployed high school graduates 26 months (ref. duration) grade 11	977 600	19 552
4) Per diem -"- -"	600 000	12 000
5) Data-processing costs (printing etc.)	5 000	100
6) Miscellaneous costs	107 700	2 154
Total	1 750 000	35 000
	=====	=====

3.

Ditto for stationary animals

1) Salaries of two observers, supervisors, scale 8, 7 months	26 000	520
2) Per diem -"- -"	26 000	520
50% salary increase	13 000	260
3) Data-processing costs	5 000	100
4) Miscellaneous costs	5 000	100
Total	75 000	1 500
Total operation costs	1 756 550	35 131
	=====	=====

Duration

Two months (March-April) training in data-collecting procedures; five months (May-September) collecting data in Shewa and Dasht-i-Ish; seven months (October-April) collating data; five months (May-September), rechecking data in Badakhshan; seven months (October-April) preparing final report and recommendations. Total time 26 months. Twenty data-collectors should be hired for research in each area, or a total of 40. Reason for long period and depth of study: no major decision which will affect so large an area and so many people should be made without a detailed study of all problems and factors involved: socio-cultural, economic, political, ecological.

Responsibility

Central Statistical Office, unless a Rural Training Center is established in Badakhshan.

Project No. 5.2

Project name Animal Health Survey

Location One in each (7) alaquadari

Definition No systematic animal health survey covering all domestic animals, both stationary and migrating, has so far been made in Badakhshan. Several sample type investigations concerning certain animal groups especially sheep have been carried out and the results published (ref. sectoral report: Livestock and Animal Husbandry).

The most common diseases reported appear to be:

Sheep and Goats

Sheep Pox, Goat Pox, Echinococcus, Anthrax, Enterotoxaemia, Scab, Keratitis i.e. Polyarthrititis, Mastitis (Agalaxia)
Ectoparasites (mange mites, lice)
Clostridiosis, Ecthyra contagious, Intestinal
rematodes, Tick borne diseases, Foot rot.

Cattle

Anthrax, Brucellosis, Fasciola, Black leg, Echinococcus, Foot and Mouth disease, Tuberculosis, Mastitis, Hypodema bovis Tick borne diseases, Foot rot, Hemorrhagia septicemia.

• Poultry

Newcastle disease (two types), Pox.

The purpose of this survey is to disclose the most common types of animal diseases affecting animals in various areas and under different conditions in Badakhshan and the treatment used.

Relation to the development strategy objectives

The survey would give valuable information on how to develop the successive measures, namely curative and preventive activities in the future. It is an interim phase which should lead to the three following phases:

- 1) vaccination programmes
- 2) dip-use and sprayer systems, and
- 3) general improvement of veterinary services.

Description of the project objectives

As mentioned in the first chapter, the purpose of this project is to make an investigation in depth on the most common and economically most harmful diseases, their origin, reason, type, rate, curative methods etc. In this way a clear picture may emerge also illustrating geographically the most heavily affected areas.

Phases of implementation

- 1) A complete operational plan of how the survey should be carried out. This task should be given to a team of competent veterinarians, local livestock extension officers and representatives of cattle owners;
- 2) Field survey under the leadership of a senior veterinary officer (veterinarian).

Due to the scattered pasture lands and scattered farm population, it is suggested that seven teams each consisting of one competent veterinarian and two assistant veterinarians, should do the field work in seven alaquadaris. The work load should be divided as evenly as possible between the teams. The survey should be carried out during one spring-summer period of about five months duration.

Advantages

This type of board and simultaneous approach covering every alaquadari at the same time would best disclose the most common diseases, would localize them and then give as versatile and reliable a picture as possible under the prevailing difficult conditions.

Costs

	Afs.
1) Salaries of 7 veterinarians,	
rank 8, 5 months	73 500
50% salary increase	36 750
Travel expenses 100% of salaries	73 500
2) Salaries of 14 assistant	
veterinarians, grade 7	111 000
50% salary increase	55 500
Travel expenses 100% of salaries	111 000
3) Data-processing costs	20 000
4) Miscellaneous costs	10 000
Total	Afs. 491 250
	=====
	Equal to US\$ 9 825
	=====

Duration

7 months plus data-processing procedure about 2 months.

Responsibility

Veterinary Department, Ministry of Agriculture in co-operation with the University of Kabul, Faculty of Agriculture.

In this case, the most suitable and capable existing organization to be responsible for the creation of the project organization, would seem to be the Rural Development Department, Prime Minister's Office.

Again, two main functions should be covered by the new organization, viz.

- the implementation of the development programme, and
- the research and evaluation function.

Both of these organizational units should report directly to the RDD.

Both organizational units could be similar to the units described under Alternative I.

The research and evaluation unit should work in close co-operation with the Ministry of Planning.

The BARD would then have full responsibility for the implementation of the development programme. In this case, also the road maintenance and road construction centers and the RDD Badakhshan should report to the BARD.

3.1.3

Discussion, Alternative I against Alternative II

	Alternative I	Alternative II
Strong points	Effective use of the existing organization	Competition created by the new organization
	Easier to determine the total duties within the organization	Development Projects and Programmes easier to organize
	The total cost of organization is lower	New personnel is easier to introduce
	At long range, the administrative organization will also be trained to be responsible for Rural Development	
Weak points	To some extent a change of personnel will be needed	The existing personnel will not be trained to take over the new responsibilities
	Change of salary policy will be difficult but necessary	The administrative duties of the two organizations will be difficult to determine, in detail.

Project No. 5.3.

Project name Botanical investigation of pastures.

Location Badakhshan

Definition The purpose of this kind of study is to investigate what varieties of the most important grasses and legumes are grown on natural pastures in Badakhshan province.

This may lead to certain proposals on the improvement of pasture husbandry.

Phases of Implementation

The survey may be carried out by university students as part of their study. They could collect samples of the above-mentioned pasture varieties supervised by a botanist. A fodder crop research might be combined with this type of survey.

<u>Cost Estimate</u>		Afs.
1) Salary + travelling costs of one botanist, rank 6		16 200
+ 50 % salary increase		8 100
per diem		16 200
2) Salaries + travelling costs of 13 undergraduates, grade 6, 3 months		74 100
per diem		58 500
3) Data-processing costs		20 000
4) Miscellaneous costs		5 000
Total costs		Afs. 198 100
		=====
	Equal to US\$	3 962
		=====

Duration About half a year.

Responsibility

The Ministry of Agriculture, the survey to be carried out by the Kabul University, Faculty of Agriculture.

Project No. 6.1,

Project name Winter Feeding of Animals,

Definition Animal husbandry is the main source of income for the people living in the most mountaineous and most remote areas in Badakhshan, where crop production is nearly impossible or at least heavily restricted because of natural conditions.

The same natural conditions, of course, also limit the quantity of animals in these areas. The main bottleneck in animal husbandry seems to be the extremely severe winter on the mountains, which causes heavy losses every winter and catastrophal situations once or twice a decade. The animals mainly seem to die of lack of food at the end of the winter, but partly also because of the cold winds and of a combination of these two factors. Especially difficult are winters when exceptionally thick snow layers are formed on the pasturelands, so that the animals cannot seek their food in the countryside.

The people of Badakhshan collect hay every fall, but the quantity available appears not big enough to ensure the survival of the animals, especially during heavy winters.

One solution to this problem would be to reduce the quantity of the animals so that the quantity of food would be sufficient for the remaining number of animals. That would anyhow, mean that also the quantity of people living in the mountaneous areas would need to be reduced.

Economic calculations, however, show that it would be feasible to keep about the prevailing quantity of animals in these areas, and provide them with a marginal quantity of reserve food to prevent extra losses during the most severe winters. 1)

An example:

If e.g. 50 000 sheep out of 100 000 can be kept alive by giving the animals an extra 10 kilograms ration of barley (300 grams per day per month), the calculation would be as follows:

Value of 50 000 sheep	Afs.
ā 1 000 Afs. each	50 000 000
Less 100 000 x 10 kg x 10 Afs. (the price of barley includes transport and storage costs)	10 000 000
Net gain	<hr/> Afs. 40 000 000 =====
	US\$ 800 000 =====

1) see page 32, Volume III.

As a constraint, it should be borne in mind that the prevailing transport facilities do not allow the implementation of a fully covering system. The food must first be transported from outside Badakhshan to the stores and then from the stores to the animals. Also the financing of the extrafood is probably going to be difficult to the animal owners.

It is, nevertheless, proposed that this kind of emergency feeding of animals should be started as soon as possible, first on a minor scale.

There are three sites, where food stores should and could be established on the first phase, viz.:

- Eshkashem
- Zebak
- Southern Jurm

Approximate number of sheep and goats

Of which within the reach of food stores

		Afs.
Eshkashem and Wakham	41 000	25 000
Zebak	15 000	15 000
Jurm and Kerano Menjan	90 000	70 000
Total		110 000
		=====

Quantity of barley needed

Eshkashem	250 tons
Zebak	150 tons
Jurm	700 tons
Total	1 100 tons
	=====

Store capacity needed

Eshkashem	250 tons x 1,5 m ³ /ton x 2	750 m ³
Zebak	150 tons x 1,5 m ³ /ton x 2	450 m ³
Jurm	700 tons x 1,5 m ³ /ton x 2	2 100 m ³
Total		3 300 m ³
		=====

Costs

Capital investment needed

	Afs.	US\$
Stores 3 300 m ³ á 300 Afs/m ³	1 000 000	20 000
Barley 1 100 tons á 10 000 Afs/ton	11 000 000	220 000
Total	12 000 000	240 000
	=====	=====

Current yearly costs

A f s .

US\$

Half of the barley stored	5 500 000	110 000
Personnel costs, local staff	<u>600 000</u>	<u>12 000</u>
Total	<u>6 100 000</u>	<u>122 000</u>

Duration

The first phase would have a duration of 5 years, after which the programme should be evaluated.

Responsibility

Construction: the R.D.D.
Immediate action: the Governor of Badakhshan
Long-term action: the Co-operative
Organization of Badakhshan

Project No. 6.2

Project name Small Scale Irrigation Schemes

Location Badakhshan

Definition Irrigable areas in Badakhshan have been determined by Finnconsult from the Land Use Maps 1:100 000. The accuracy of the maps has partly been checked on the spot during the field survey.

The method of irrigation is considered to be low-lift pumping or upstream canal feeding. The data available do not allow the determination of the method, which should be investigated before starting the work.

The cultivated area of the province has been estimated in table No. 1 attached to this project description.

From the same source, the low lying areas best suitable for irrigation were studied regionwise. They are presented in table No. 2.

During the field survey some of these areas were investigated in more detail. These areas are suitable sites for small-scale irrigation schemes at short terms. They are presented in table No. 3.

The total area and costs of this programme are shown in table No. 4.

The location of these areas is presented in map No.10.

Phases of Implementation, Short-Term Programme

1. Recruitment of personnel
2. Field investigation
3. Design
4. Provision of the equipment and supply
5. Construction work

Costs

Capital investment

Equipment (R.D.D., July 1976):

Item	Description	No.	Unit cost \$	Total cost \$
1.	Dump trucks 4 cu.m.	2	18 000	36 000
2.	Flat bed truck 6 tonne with 1/1/2 tonne crane	1	23 000	23 000
3	Wheel tractors with 4.25 m backhoe 1 cu.m. loading bucket and back fill blade	2	35 000	70 000

4. Water pumps 10 cm with hoses	3	3 000	9 000
5. Concrete mixers 5/3 1/2	3	3 000	9 000
6. Concrete vibrators, engine-driven	3	800	2 400
7. Self-powered rock drill with steels	1	2 500	2 500
8. Servicing and repair tools and welding set	1	5 000	5 000
9. Precast concrete pipe moulds set 60 cm - 150 cm.	5	2 000	10 000
10. Gabions assorted sizes	2 000	20	40 000
		Sub-total	206 900
		=====	
11. Spares for item 1-7 welding set	20% of	154 900	30 980
		Sub-total	237 880
12. Freight and handling 25%			59 470
		Total \$	297 350
		=====	
		Equal to Afs.	14 867 500
		=====	

Personnel costs, yearly

	Afs.	US\$
Salaries (Irrigation Engineer with counterpart, two foreman)	2 740 000	54 800
	=====	=====

Construction costs

	Afs.	US\$
Phase one	8 112 000	162 240
Phase two	14 300 000	286 000
	=====	=====
Total	22 412 000	448 240
	=====	=====
Construction costs per year (during ten years)	2 241 200	44 824
Personnel costs	2 740 000	54 800
Total yearly costs	4 981 200	99 624
	=====	=====

Duration

This irrigation programme could be implemented over about ten years.

Responsibility

The Rural Development Department, Prime Ministers' Office.

TABLE 1

Soil classification in Badakhshan

(source: Topographic Department, Kabul 1976)

Class type of soil use	area estimation km ²	% of total area	% of culti- vated area
1. Garden	48,0	0,1	0,9
2. Wheat + rice	0,0	0,0	0,0
3. Wheat + corn	40,5	0,1	0,7
4. One crop per year	87,5	0,2	1,6
5. After 2 years as follow one crop	360,3	0,9	6,6
6. After 2,5 to 3 years of follow one crop	1,2	0,0	0,0
7. Water logging during March- May, afterwards dry farming	0,0	0,0	0,0
8. Flat dry-farming (semi-desert)	232,4	0,6	4,4
9. Dry-farming on the hill slopes	4 643,6	11,5	85,8
Total	5 413,5	13,4	100,0

TABLE 2

Source: soil classification maps 1:100 000

IRRIGATED AND IRRIGABLE AREAS

Regions	Valleys	IRRIGABLE (1)	IRRIGABLE (2)
Keshem region	Keshem Valley	40.85 km ²	40.85 km ²
	Wakhsi Valley	-	1.65 km ²
	Teshkan Valley	0.95 km ²	9.30 km ²
Faizabad region	Darayem Valley	-	18.30 km ²
	Hazara Valley	-	6.80 km ²
	Faizabad Valley	-	7.55 km ²
Baharak region	Baharak Valley	2.7 km ²	27.55 km ²
	Zardew Valley	9.3 km ²	24.10 km ²
	Warduz Valley	2.7 km ²	11.60 km ²
Jurm region	Jurm Valley	8.95 km ²	19.45 km ²
	South Jurm Valley	-	3.45 km ²
			170.60 km ²

Possible Small-Scale Irrigation Scheme Sites

No.	Woluswali Alaquardi	Map no. 1:100 000	Coordinates		Name	Total	Area in Ha.	
			North	East			I Phase Irrigation	II Phase Irrigation
1.	Sengar	217 C	56-58	15-16	Sengar	20	20	-
2.	Faizabad	217 F	98-01	58-60	Kotal-i-Dar Khan	200	50	150
3.	Faizabad	217 F	98-01	59-60	Sat-i-Hawdz	100	50	50
4.	Khwahan	217 A	88-96	04-07	Deh Khahan	400	100	300 Pumping
5.	Keshem	223 A	66-70	99-03	Kuska Darrah	100	50	50
6.	Keshem	223 A	75-77	94-97	Mashad	50	50	Cement Walls against washouts
7.	Keshem	223 A	85-88	93-95	Gumbad-i-Ta-in	50	50	-
8.	Jurm	223 B	88-92	64-66	Sar-i-Hardz	200	100	100
9.	Jurm	223 B	93-94	67-68	Dast-i-Feraq	200	100	100
10.	Jurm	223 B	85-90	54-57	Darrah-i-Khas			
11.	Jurm	223 B	85-90	54-57	Sahtan	1 200	100	1 000
12.	Jurm	223 B	77-78	66-68	Kitep	100	50	50
13.	Jurm	223 B	74-75	66-67	Larip	50	50	50
14.	Eshkashem	224 B	70-72	28-30	Dusht Granquabad	100	50	50 Pumping
15.	Zebak	224 C	improvement of the existing irrigation systems by construction of cement/ stone walls against the river					

Appendix: Small scale irrigation schemes

Total area to be Irrigated in Ha.

REGION	PHASE ONE Ha	Cost Afs.	Cost US\$	PHASE TWO Ha	Cost Afs.	Cost US\$
Sengar	20	1 144 000	22 880	-	-	-
Fayzabad	100	720 000	14 000	200	1 440 000	28 800
Khwahan	100	1 000 000	20 000	300	3 000 000	60 000
Keshem	150	1 440 000	28 800	50	360 000	7 200
Jurm	400	3 308 000	66 160	1 250	9 000 000	180 000
Eshkashem	50	500 000	10 000	50	500 000	10 000
Zebak	improvement of existing irrigation system (no estimate)					
Total	820	8 112 000	162 240	1 850	14 300 000	286 000
=====						

The complex Governmental Organization in Kabul will cause delays

If a double organization will be created also at district level, the new organization will be expensive

3.1.4 Conclusion

Emergency actions, like the RDD and World Food Programme, are in any case the easiest to implement through the use of existing organizations which have already been trained, at least partly, to fulfill their duties.

Programmes concerning the improvement of the physical infrastructure are traditionally implemented by the use of project organization, also if the administrative organization is basically in charge of the action.

When implementing development projects and programmes concerning the productive activities, the creation and use of the implementing organization will be a difficult task also if the basic model is a development project organization instead of the existing administrative organization.

At long range, it will be most useful, not only in Badakhshan but when thinking about the future development of Afghanistan as a whole, to train the existing organization to take over also the duties of development planning and the implementation of the plans.

The administrative organization can then, guided in the beginning by advisory experts, create provisory type of organizational units for the implementation of separate projects and programmes.

As a conclusion, Alternative I is to be preferred when considering the organization of the rural development of Badakhshan.

3.2

Physical Infrastructure

3.2.1 Transport

The Ministry of Public Works is constructing a high class paved road (Russian class IV) from Kunduz to Talukan, which stretch is now ready to be paved. This road will reach Keshem in Badakhshan in the year 1980. A team of Russian experts is supervising this road construction.

An extension of this road via Artin Jelaw to Faizabad has been surveyed along the Kokcha river, and will be constructed in 1981 to 1982.

Project No. 6.3

Project name Vaccination Programmes

Location Khwahan - Darwaz area, Shegnan - Baharak area, Keshem, Faizabad, Jurm, Zebak - Eshkashem

Definition In the present time no systematic vaccinations are carried out in Badakhshan. The vaccination programme suggested here means the systematic vaccination of those animal groups which are most affected by diseases which can be controlled and prevented through vaccination.

The most common diseases in Badakhshan to be controlled by vaccination seem to be: (ref. sectoral report: Livestock and Animal Husbandry). Anthrax, Black leg, Enterotoxaemia, Sheep-Pox, Newcastle diseases (two types) Rinderpest, Clostridiosis, Foot and Mouth disease, Hemorrhagia septicemia.

Until now there has been no legislation on animal diseases. To control many diseases prompt and strong action would be needed. The compulsory vaccination would be one way. The question is, however, sensitive and large, and needs careful planning.

Description of project objectives

The objective is to improve the economy of animal husbandry

1. by saving animals from death or deterioration of condition caused by animal diseases, and
2. by improving the quality of skins (ref. Volume III, pages 66 and 67).

Phases of implementation

1. The animal health survey according to project No.5.2 should be carried out before the implementation of this programme.
2. A clear strategy should be planned on how to combat the many difficulties connected with this kind of large programme.
3. Simultaneously animal health advisory work should be carried out. Vaccination programmes may also be combined with animal census (ref. Animal Census and other related surveys project No. 5.1).

Advantages

The death rate of vaccinated animals will decrease sharply and the milk yields, virility of off-springs and the weights of slaughtered animals will rise, the quality of skins and hides will improve considerably, especially if the vaccination programmes could be combined with dip-use or sprayer system.

CostsCapital investment

	Afs.	US\$
Construction of 5 vaccination stations, 20 000 Afs.each	120 000	2 400
	=====	=====

Current yearly costs

per each station:	Afs.	US\$
Salaries and per diem of a veterinarian, 5 assistant veterinarians and a cleaner	300 000	6 000
Vaccination materials	50 000	1 000
Miscellaneous costs	<u>150 000</u>	<u>3 000</u>
Cost per station	500 000	10 000
Total current costs per 6 stations	3 000 000	60 000
	=====	=====

Duration

This programme should be made permanent after once being established. Later the vaccination stations could be developed into Veterinary Clinics on Animal Health Centres.

Responsibility

The Ministry of Agriculture.

Project No. 6.4

Project name Use of dips and sprayer system

Location 1) Khwahan-Darwaz 2) Shegnan - 3) Baharak
Area Baharak area (existing one)

A number of diseases are tick-borne. There are evidences that tick-borne diseases are rather common in Badakhshan. Tick wounds, in addition, give birth to secondary infections.

One communal dip has been constructed on the road side between Faizabad and Baharak, which is one of the main nomad livestock routes. It has been abandoned for unknown reason.

As tick-borne diseases cause severe losses in animal stocks (anaemia, stinking especially among young animals and loss of condition in adult stock) it is recommended that this dip be taken into use again after some minor repair work.

Two new dips should be constructed. These would be permanent, stationary dips. At least one sprayer-operated equipment should be purchased and installed close to every dip. Some portable dip-sprayers should also be purchased.

Description of the project objectives

1. Limiting tick-borne diseases to the minimum.
2. Possibly combining with other veterinary services (ref. vaccination programmes project No. 6.3, development of veterinary services in general, project No. 6.5).
3. Possible combined use against foot rot.

Phases of implementation

1.

Operational plan

Due to the fact that dipping equipment with tanks is expensive, they must be well served with a good water supply and have an effective system of drainage which will not pollute the water supplies. The communal dip must serve a large area and requires close supervision to ensure that concentration of dip detergent is maintained and the tanks are not misused. The collection of animals from large areas causes a serious disease hazard. With the introduction of organic insecticides it has been possible to control ticks adequately by spraying.

2.

The equipment types

1. Ordinary communal dips
2. Stationary sprayers
3. Small portable pumps fitted with two sprayer lances to spray each side simultaneously.

3.

Use

Specific attention should be paid to the areas where ticks collect, such as ears, under the tail, and in tail buck. Spaying is suitable for big cattle-owners or co-operatives to be financed and operated independently. For owners of rather small herds with 20 to 25 animals it is worthwhile purchasing a knapsack sprayer. For large herds a power sprayer (tractor-driven for example) is advisable. Tick-borne disease control should take place twice a year: in early spring and in late autumn.

Advantages

1. Control and gradual eradication of tick-borne diseases.
2. Increase in livestock owners' income due to better condition of animals.

Costs

	Afs.	
1. Capital investment cost per dip		
1. communal dip	100 000	
2. stationary sprayer	50 000	
3. knapsack	3 000	
Total costs	153 000	
	=====	
2. Operating costs		
1. interest (8%) maintenance (5% depreciation (10%) total (19%)	29 700	
2. salaries of 2 assistant veterinarian, grade 8 + 50% salary increases per diem salary of 1 night watchman grade 11	19 500 17 500 11 400	(5 months)
3. organic insecticides etc.	45 000	
4. miscellaneous costs	60 000	
Total operating costs	183 100	
	=====	

For 3 dips

	Afs.	US\$
Capital investment	460 000	9 200
	=====	=====
Current yearly costs	550 000	11 000
	=====	=====

Duration

Permanent

Project No. 6.5

Project name Development of Veterinary Services.

Location 7 in main animal areas

Definition As mentioned earlier livestock husbandry forms a very essential part of Badakhshan economy. It is therefore self-explanatory that all measures which can improve the condition of domesticated animals are most welcome, provided the costs involved are reasonably related to the extra revenue.

Logically, the development of such veterinary services as would adequately cover all alaquadaris, would be the best ultimate goal. As veterinary officers (veterinarians) trained in Afghanistan have received instruction in general livestock husbandry, e.g. not only in curative medicine, but in preventive animal husbandry, too, it might be reasonable to elaborate to some extent on the general background of animal health.

1. Natural immunity

Natural immunity can be obtained at least to a certain extent by selection and breeding. By intelligent breeding selection, the following advantages have been obtained:

1. resistance to endemic diseases
2. ability to utilize the natural feed available (poor woody fodder)
3. ability to live and breed under local climatic and management conditions (heat tolerance; Zebu highest, Jersey second, Friesian third; tolerance to water shortage; respiration rate)

2. Increase in milk and meat productivity can be obtained by selection and breeding

3. Modern techniques

1. artificial insemination
2. more intelligent management such as night paddocking, midday shade, better pastures
3. better medicine and drugs and more effective veterinary assistance
4. development in livestock industry (slaughterhouses, packing, canning industry, tanning leather industry, etc.)

Description of project objectives

1. General improvement in condition of all livestock in Badakhshan;
2. Animal husbandry advisory work combined with curative measures.

Phases of implementation

1. Assignment of one team consisting of one competent senior veterinarian, rank 5, two assistant veterinarians/animal health assistants, rank 7, three unskilled workers, grade 8, one cleaner, and one night watchman
2. Construction of one clinic in Baharak.
3. Evaluation of the pilot project according to experiences from one year activities in Baharak.
4. Establishment of 6 additional clinics, if found to be feasible.

<u>Costs</u>	Afs.	US\$
<u>1. Capital / investment cost</u>		
1. veterinary clinic/animal health centre with equipment, instruments etc.	400 000	8 000
	=====	=====
<u>2. Operating costs</u>		
1. Expert, veterinary services	2 500 000	50 000
2. Salary of one senior veterinarian, rank 5 + 50% per diem	54 900 40 000	1 098 800
3. Salaries of two assistant veterinarians, rank 7 + 50% per diem	64 800 45 000	1 296 900
4. Salaries of five unskilled labourers, grade 8	78 000	1 560
5. Running costs (transportation, etc.)	450 000	9 000
6. Medicine, drugs, etc.	250 000	5 000
7. Miscellaneous costs	<u>50 000</u>	<u>1 000</u>
Total operating costs per one clinic	3 532 700	70 654
	=====	=====
7 veterinary clinics		
Total investment costs	2 800 000	56 000
Operating costs	24 728 900	494 578
	=====	=====

Return on investment

It is extremely difficult to estimate this indication of profitability. If it is estimated that the total number of livestock in Badakhshan is in the region of 300 000 cattle units and that through improved curative and preventive veterinary measures say about 10% increase in productivity would be reached, this would mean a cross margin of about 45 million Afs. As indicated above, the annual total cost would be about 7,5 million Afs. The net saving would thus be about 37,5 million Afs.

Duration

The construction of the first clinic should not take more than one year. The recruitment and local training of personnel can take place simultaneously. The programme is of a permanent nature.

Responsibility

The Veterinary and Animal Health Department of the Ministry of Agriculture.

Project No. 6.6.

Project name Improvement of extension services

Definition In the present time (July 1976) the extension department in Badakhshan has the following composition:

Woleswali	Super- visor Number	Grade	Number of Agents	Grade
Faizabad	1	6	4	9
Jurm	1	6	4	7-9
Baharak	1	6	6	7-9
Eshkashem	1	6	7	7-9
Keshem	1	6	7	7-9
Darwaz	-	-	1	7
Wakhan (served from Eshkashem)	-	-	-	-
	5		29	

Because one of the main objectives of the programme is to find out how to raise the standard and productivity of agriculture, it must be emphasized that the farmer himself is the most important factor, because almost all other measures to be taken are dependent upon his favourable attitude. There is evidence in other countries that a competent extension staff is one of the best guarantees for a successful implementation of various innovations.

Advisory and follow-up activities at farms and villages are the right working field for effective extension agents, but they need tools to work with and recognition because real agricultural extension field work is tiresome, often irregular, and sometimes even unrewarding.

Recognition means status and opportunities for promotion. Status means in most cases reasonable salaries and per diem, proper transportation means and modern working tools. Especially in remote areas like most of Badakhshan province the terms of reimbursement for extension work done, i.e. the terms of salaries must be good enough to attract talented extension workers to long-term assignments there.

Their number must be sufficiently large to cover all main areas of agriculture and forestry. Specialization is essential to a certain degree. In remote districts the extension agent must, however, be a generalist with a broad agricultural theoretical and practical background.

Relation to the Development Strategy Objectives

The name Extension Service indicates that this is a question of helping people to help themselves and improve their standard of living. Thus the above-mentioned objectives fit in perfectly well with the general development strategy objectives.

Description of the Project Objectives

1. To increase the number and quality of extension personnel to conform better to the farming population number and to their expectations;
2. To improve in every way possible the extension personnel's living conditions and working facilities in order to be entitled to expect competent and enthusiastic service;
3. To expect a positive response from the farming population to the service thus provided and as a long-term result a gradually rising suspensive standard of living.

Phases of Implementation

1. Increase in number of extension personnel;
2. Need for transportation and AV-equipment;

Woluswali Transportation Main (AV-aids)

	horses	motor- cycles	slide projec- tor + chart	film projec- tors	tape- recor- der
Faizabad	1	7	1	1	1
Jurm	3	7	1	1	1
Baharak	-	7	1	1	1
Eshkashem	1	9	1	1	1
Keshem	1	10	1	1	1
Darwaz	2	-	1	1	1
Wakhan	1	-	1	1	1
	9	40	7	7	7
In initial phase	5	20	4	4	4

3. Salary increase to all professional extension service personnel, 50 per cent general increase on monthly salary;
4. Per diem increase to all extension service entitled to per diem in Badkshan;

5. Better family allowance in form of free housing;
6. Other incentives; possibilities for promotion in accordance with proven ability to achieve good results despite difficult conditions;
7. Better housing facilities.
8. A proper and reasonable number of farmers/ farmers' families per supervisor or agent. This may be in the region of 150-500 at village level, 6 000 at alaquadari level and 20 000 at provincial level depending upon the type of production, distances to villages and farm from duty station, transportation provided etc.;
9. Better communication services, taperecorders, loudspeakers, etc.;
10. Improvement on general educational background;
11. Refreshment and in-service training courses at regular intervals for extension staff members (mainly at R.T.Cs.);
12. Establishment of R.T.Cs (ref. Rural Training Centers, project No. 0.1.2);
13. Establishment of 4H-type rural youth clubs:
 1. school clubs
 2. open (village) clubs
14. Scholarship and fellowships for professional extension service personnel both overseas and in Afghanistan (sabbatical year-system).

Advantages

This is a long-term project in essence. Occasionally the result may require 4 to 10 years but some may materialize almost immediately depending upon type and character of innovation. Those having a simple character which are possible to implement in parts and which cost little are the easy ones. The more complicated and less visible the innovations, the slower the diffusion/adaptation process.

Advisory work, which is in essence education, and an attempt to change attitudes, is in the long run still one of safe ways of development.

Just before this report was printed, a decision was taken to construct this road according to the results of survey done. According to plan, the road will reach Faizabad in the year 1982.

This road will connect the centre of Badakhshan with the commercial and industrial centres of Afghanistan.

However, few people live in the Kokcha river valley, so full advantage of the main road can be taken only by improving the feeder roads so that at least the regions with the highest population density would have access to the main road.

For the time being, the areas north of the Kokcha river have no motorable roads. Therefore, a bridge over the Kokcha river to the north and a feeder road to Ragh and later on to Khwahan should have the highest priority. Because of quite large technical difficulties in connection with this road alignment, a feasibility study on air transport should be made as a first step, as a basis for short term solutions.

Another road alignment from Artin Jelaw to Faizabad was presurveyed by Finnconsult over the hills via Dekhan Khana. This road also should have a high priority, because it would serve a vast population living on the hills south of the Kokcha river.

From Faizabad to Baharak, the main alignment has no alternative, but, when using modern techniques, the most economic combination of bridges and cuttings should be surveyed.

After the surveys, first a low class road (KAMPSAX C) and later a better road should be constructed to Baharak, because this district has the best potential for agricultural development.

The implementation of this programme will take about eight to ten years at best. Therefore, the road maintenance programme has been given top priority in this report.

This Road Construction Programme is also limited to the center of Badakhshan. It is therefore of utmost importance for a more even and integrated development of the province, that the RDD and World Food Programme for Road Improvement have a high priority.

A summary of the Transport Improvement Projects is on page 13.

Costs

I. Capital investment (initial phase)

	Afs.	US\$
5 horses á 50 000	200 000	4 000
20 motorcycles á 20 000	400 000	8 000
4 slide projectors á 9 000	36 000	720
4 film projectors, 16 mm á 45 000	180 000	3 600
4 taperecordes á 9 000	36 000	720
4 loudspeakers á 4 000	16 000	320
Total	868 000	17 360
	=====	=====

II. Operational costs

	Afs.	US\$
1. Salaries of new extension personnel		
6 agents, grade 9 + 50% salary increase	120 960	2 420
6 agents per diem 150 days	60 000	1 200
6 agents, grade 8 + 50% salary increase	140 000	2 800
6 agents per diem + 150 days	70 000	1 400
2. Salary increases of present personnel		
5 supervisors, grade 6 + 50% salary increase	57 000	1 140
5 supervisors, per diem increase 150 days	40 000	800
29 agents, average grade 8 + 50% salary increase	226 200	4 530
29 agents per diem increase 150 days	150 000	3 000
3. Other current costs	135 440	2 710
Total yearly costs	1 000 000	20 000
	=====	=====

Duration

The intended duration of this project is at least ten years preferably fifteen years, because according to experience from other countries, the adoption process of certain innovations may take 8-10 years.

Responsibility

The Ministry of Agriculture, Department of Research and Extension, is responsible for all extension services.

Project No. 6.7

Project name Experiments, Crop Production

Location Badakhshan

- Definition
1. Local experimental plots on individual/private farms 2-3 on number on every alaquadari, roughly 30 in all.
 - 1.1. fertilizers: urea, D.A.P. and tested seed provided free of charge by the government to the farmers concerned
 - 1.2. suitable size: 500 - 1 000 m²/experimental plot
 - 1.3. number of replications: none at the same place but together as many as the above-mentioned experimental plots can be established in Badakhshan province
 - 1.4. standard lay-out of experimental plot:

0 kg	1 x kg	2 x kg	3 x kg	urea (where only urea has been recommended)
0 kg	1 y kg	3 y kg	3 y kg	urea + D.A.P. (where both fertilizers have been recommended)
 - 1.5. plants/crops under experiment:
 - 1) cereals: wheat, barley
 - 2) vegetables: carrot, onion, tomato
 - 3) potato
 - 4) fruit trees: apple, pear, walnut, mulberry
 In the initial phase only one plant/crop should be included simultaneously in every alaquadari; later on a more complex structure of experiments could be introduced.
 2. Experimental plots on government owned farms/experimental farms.
The same pattern as above.
 3. Experimental plots on R.T.C. farms.
The same pattern as above.
 4. Additional experiments (on R.T.C. farms only)
 - 4.1. insecticide, herbicide experiments
The experiments might be combined with the fertilizer experiments in a proper manner without causing any hazards, however, to the interpretation of the factors which have caused the obtainable results.

- 4.2. other possible experiments (sowing time, spacing etc.).

Relation with the Development Strategy Objectives

To increase self-sufficiency in crop production and in the long term to increase the cash income of the people by creating over-production.

Description of the Project Objectives

1. To check that experiences from previous experiments in Afghanistan are relevant in Badakhshan.
2. To develop methods best suitable for use in Badakhshan.
3. To demonstrate the result to the farmers.

Phases of Implementation

1. Baharak Training Centre
2. Farmers in Baharak, Jurm, Zebak, Eshkashem, Faizabad, Keshem, Darwaz, Khwahan, Shahr-i-Bozurg, Ragh, Wakhan, Sheghnan and Koranomunjan, in a rough order of priority.

Advantages and Costs

In most cases a moderate application of fertilizers has proved to be economically profitable. This should be true especially in Badakhshan where the use of chemical fertilizers is so far insignificant.

The fertilizer experiments at Baghlan Experimental Research Station (nearest to Badakhshan province) have given the following results:

1. crop	2. variety	3. dosages of fertilizers N P ₂ /5 kg/ha		K ₂ O	4. results kg/ha	5. best dosage N P ₂ O ₅ kg/ha	6. remarks & economics
WHEAT	local dry- land spring	0	0	0	258		returns 1 000 Afs/ha/100
		30	0	0	553		Afs. invest- ment 2.6 (380)
		15	15	0	793		
		30	30	0	873	30 30	
irrigated		0	0	0	2 100		returns 1 000 Afs/ ha/100 Afs.
	Maxipak	67	0	0	2 680		investment 2.6 (560)
		133	0	0	3 050		
		133	40 to 80	0	3 570	20-40 20-30 50-70 50-70	depending on rainfall and soil type
RICE	Basmati	40	0	0	1 740	N.S.	N.S.= results not signifi- cant
fine	local	60	0	0	2 330	N.S. 40 0 80-120 30	
		80	0	0	1 730	N.S.	
		0	30	0	1 980	N.S.	
CORN	local	75	75	0	4 100		return/100 Afs. 512;
		150	150	0	5 100	75	return/100 Afs. 487

Costs

An example: experimental plot 400 m²; crop: winter wheat irrigated

0 plot	1 y plot	2 y plot	3 y plot
0 kg urea	0,5 kg urea	1,0 kf urea	1,5 kg
0 kg D.A.P.	0,3 kg D.A.P.	0,6 kg D.A.P.	0,9 kg D.A.P.

	Afs.
Cost: seed 7 kg á 10 Afs.	70
fertilizers 4,8 kg	50
labour hours 4 á 5 Afs.	20
supervision 2 hours á 25 Afs.	<u>50</u>
Total	190 Afs. per plot =====

Total yearly costs for 30 plots would thus be
approximately 6 000 Afs or 120 US\$
=====

(The salaries of the extension officers are not
included).

Duration 5 years with possible extension.

Responsibility
The Rural Development Center.

Project No. 6,8

Project name Afforestation programme

Definition The great part of the Badakhshan province is in alpine and subalpine altitude, where no trees grow. The rest is mainly divided between pistachio and Juniperus, only scattered trees here and there not forming any dense forest. Attention is not paid to the development of forests and forestry programmes in Badakhshan. The forests in Badakhshan were considered of poor economic value.

Badakhshan has a very small area under pistachio and Juniperus vegetation and there seems to be no programme of development of forestry in the near future.

The following indigenous trees, shrubs and climbers are found in Badakhshan:

1. Cercic Griffithil
2. Cotoneaster bacillaris
3. Eleagnus edalis
4. Pinus Persico
5. Clematis Spp.
6. Prunus
7. Celtis Australis
8. Berberis aristata
9. Periploco Aphylla
10. Wild Vetis

The local people have small plantations of Populus Alba, Populus Nigra, Platanus Orientalis, Morusalba, Robinia Pseudalcacia, Ailanthus excelsa, Salix aemophylla and Salix Angustifalia. The trees are planted along stream banks, river banks, field boundaries, and road and path sides.

There is walnut (Junglans Regia) tree also growing naturally and planted, scaftered between fields, houses and low hills.

These small scale plantations cannot meet the demands of the local people, and shortage of wood for building material and fuel is a serious problem.

Afforestation should be one of the most urgent and important programs in Badakhshan. Due to the severe cuttings of trees for centuries, there are hardly any forests in the true meaning of the word in Badakhshan. The almost total lack of forests has an unfavourable effect on the mocro-climate. Extremely hot days are a typical phenomenon in July-August in Badkhshan. Erosion is deteriorating not

only hill slopes, but washing off roads and causing severe floods which have made tremendous harm on houses, livestock and cultivated fields on flat land areas, too.

As time passes, forests are becoming even more important due to their multi-purpose use (recreation, protection of undergrowth vegetation, many processing industries based on wood etc.).

Afforestation should take place everywhere in Badakhshan, but especially at critical road passages, along gullies, along the roads as avenue plantations, in home gardens, as wind brakes along the fields, as boarderlines and as shade trees on pasture lands, and finally on a larger scale as a systematic afforestation programme.

Description of project objectives

It is necessary that all available lands can be utilized for afforestation. It is important that the tree planting is adopted by farmers as their own programme. Each land owner should be motivated to plant trees on his land so that tree planting becomes a peoples programme rather than a government programme only.

There is a great emphasis on the cultivation of land. There are, therefore, limited opportunities of tree planting on private lands in compact blocks.

However, the programme may be oriented as follows:

1. Planting of tree lines in the form of windbreaks around the farms to protect the agricultural crops from the adverse effects of dry, hot and desiccant winds during summer and cold chilly winds during winter.
2. Common waste lands lying idle at present offer good space for tree planting.
3. There are good opportunities for planting trees along roads, irrigation channels, ponds etc.
4. The lands rendered unfit for cultivation due to erosion or other reason may be used for tree planting.
5. Tree planting may be undertaken in compounds and grounds attached to educational institutes and government buildings.

SUMMARY

1. Small scale afforestation schemes in every alaquadari,
 - 1.1. Planting activities by local farmers, school-children, soldiers, scouts
 - 1.2. Specific afforestation campaigns "forest marches" and "remember the forest" campaigns on certain dates of every year.
 - 1.3. Possible incentives for those who have especially promoted afforestation by own planting activities.
2. Afforestation programmes on the forestry lands of the Rural Training Centers.
3. Large scale afforestation programmes (ref. sectoral report on forestry)
4. Legislative measures to promote afforestation
 - 4.1. Reorganization of the promotion and implementation organization.
 - 4.2. Legislation on improvement of profitability on investments in forests (supply of planting materials, supply of forest fertilizers, loans for afforestation projects, construction of forest feeder roads (at a later stage).

Practical implementation.

1. Field inspection with foresters and local farmers.
2. Plan of lay-out of the area to be afforested
3. Fencing (optional); preparing the land for planting
4. Planting
5. Weed control, disease, insect control
6. Application of fertilizer (urea) (optional)
7. Evaluation of afforestation projects/programmes by an expert team (at a later stage).

Advantages

1. Increased income from forest products to forest owners
2. Erosion control
3. Multi-purpose utilization of forest lands

Costs

Afforestation costs/ha (applying a modern technique;
fast-growing species)

Afs.

1. Planting material (pot plants) 2 000 pots á 15 Afs.	30 000
2. Labour hours 20 á 5 Afs.	100
3. Suoervision hours 4 á 25 Afs.	100
4. Transportation costs	200

Total	30 400
	=====

Income after the growing period of
15-20 years 100 m³ á 10 000 Afs.

Total	100. 000
-------	----------

The marginal revenue will be about 70 000
Afs. after 15-20 years of growing period.

Long-term goal: within 100 years, 5 % of the total
land area should be afforested, i.e. 200 000 ha.
Per year it would mean 2 000 ha to be afforested.

	Afs.	US\$
Total costs per year	60 800 000	1 216 000
Marginal revenue after 15-20 years	140 000 000	2 800 000

Responsibility

The Ministry of Agriculture, Forestry Department.

Project No. 7.1

Project name Handicrafts Marketing Promotion Programme

Location Kabul and Badakhshan

Definition A marketing promotion programme to be implemented for the marketing of already existing handicraft products in Badakhshan.

The following measures will be taken:

1. A representative of the Handicrafts Promotion Centre in Kabul will travel to Badakhshan and buy samples of Badakhshan products.
2. Suitability of these products will be studied.
3. The most suitable products will be displayed at the Handicrafts Emporium.
4. A plan of operation will be drawn up together with a budget including working capital.
5. Advertizing will be published in the daily newspaper "Badakhshan" to inform the people of Badakhshan of the plan of operation.
6. The products will either be sold in Kabul or exported.

Description of the Project Objectives

1. To increase employment in handicrafts.
2. To provide a better price guarantee than private merchants are willing to give.
3. To encourage the people by showing them that they have not been entirely forgotten. This is extremely important after the survey phase, because the people will undoubtedly expect something.
4. Further development, project No. 0.2.3, page 25.

Advantages

According to our survey, the price level in Kabul is approximately three times as high as in Faizabad. Again, the retail prices in Europe are roughly at least three times those in Kabul. These margins will certainly cover marketing costs, and also permit better prices in Badakhshan.

One lorry Load

5 000 pieces each 200 grams and each 200 Afs. will make

1 000 kg each 1 000 Afs. = 1 000 000 Afs.

50 per cent margin will give 500 000 Afs. to cover the purchasing costs. $2 \times 500\,000 = 1\,000\,000$ Afs/year.

3.2.2 Telecommunication

Faizabad will have a 3-channel Telephone connection to the rest of Afghanistan in the year 1978, and also the connection to Baharak will be improved. A Team financed by German Bilateral Aid is working on this project. Alternations of and additions to the plan need two years' notice. Therefore, necessary lines and switchboards to the Road Construction Center in Artin Jelaw and the Development Center in Baharak have been included in this report. Faster improvement of the network covering the rest of Badakhshan is not included in the 7-year development plan of Afghanistan. The use of wireless equipment is restricted to short distances. Summary on page 13.

3.2.3 Electrification

The prevailing situation is described in project No. 3.2. page 52.

The linkage to the network of Afghanistan will, according to preliminary plan, be possible within the implementation of the second 7-year plan.

Therefore, this report contains only proposals for provisory, small-scale power stations needed for the development centers and a feasibility study for one bigger Power Station.

That means, that within the first seven years, no larger electrification programme for the Province is proposed.

Electrification is included in the summary on page 12.

3.2.4 Other sources of energy

The utilization of hot springs and peat is supposed to be surveyed. Animal manure is supposed to be the main fuel for the next 10 to 20 years. The rest of the fuel requirements are to be imported.

3.3

Productive activities

According to the Outline for a Development Plan in the Main Report, the productive activities should

- increase
- distribute, and
- diversify

the cash revenue of the people.

Costs

1/3 time of an expert per year	Afs.	US\$
15 000 US\$	750 000	15 000
1/3 time of an assistant plus expenses	20 000	400
Transport costs	<u>30 000</u>	<u>600</u>
Total	800 000	16 000
	=====	=====

Duration

The first sample finding trip could be arranged already in autumn 1976.

The programme should be continued until the Handicrafts Promotion Center in Baharak can take over, that is approximately three to four years.

Responsibility

- Phase 1. The Handicrafts Promotion Centre, Kabul
- Phase 2. The Handicrafts Promotion Centre, Baharak

Project No. 7.2

Project name Feasibility study, Utilization of Hot Springs and Peat Resources

Location Peat: Throughout Badakhshan, especially Wakhan (Appendix)

Hot Springs: At least in the Zardew-Valley and the neighbourhood of Faizabad City.

Definition There are quite remarkable peat resources in Badakhshan. These resources are partly used by the people as heating material. This utilization could be improved.

On the other hand, the peat fields are good pasture-lands, which could be destroyed by over-utilization.

Hot springs could be used as a source of energy in areas where they can be found. This potential should be studied. Also sources of geothermic power could be found.

A combined use of hot springs and peat in the greenhouse cultivation of fruits and vegetables should be carefully surveyed. This could be the most effective way of utilizing these two sources of energy.

Description of the project objectives

To find out the most economic and effective way of utilizing the peat and geothermic energy resources in Badakhshan, taking care to avoid harming animal husbandry.

	Afs.	US\$
<u>Costs</u>		
Green housing expert 4 months	800 000	16 000
Expert in thermo power 4 months	800 000	16 000
Afghan assistance 2 x 4 months	60 000	1 000
Laboratorial tests	50 000	1 000
Travel expenses in Afghanistan	50 000	1 000
Total	<u>1 760 000</u> =====	<u>35 200</u> =====

Duration Four months.

Responsibility

The Ministry of Water and Power.

PEAT DEPOSITS IN PAMIR

APPENDIX

Project No. 2.1.4

1. Andehim --37°20' 35'' North -74° 19' 05'' East. Over an area of 10 square kilometres there is a peat bed 30 - 50 cm thick.
2. Besh-Kunak --37° 20' 55'' North -73° 22' 38'' East. Over an area of 5 square kilometres there is a peat bed 30 - 45 cm thick.
3. Tegher-Maneu --37° 21' 28'' North -74° 44' 19'' East. Over an area between 3 to 4 square kilometres there is a peat bed 30 - 40 cm thick.
4. Ahzde-Kol --37° 23' 24'' North -73° 30' East. Over an area of 2 square kilometres there is a peat bed 35 - 40 cm thick.
5. Yal-Kumak --37° 23' 40'' North -73° 17' 15'' East. Over an area of 1.5 square kilometres there is a peat bed 30 - 40 cm thick.
6. Boi-Tibat --37° 20' 22'' North -73° 11' 13'' East. Close to the mouth of the Boi-Tibat river, over an area of 1 square kilometre, there is a peat bed 30 - 40 cm thick.
7. Kara-Jelga --37° 17' 20'' North -74° 15 ' 41'' East. Over an area of 1 square kilometre there outcrops a peat bed 30 - 45 cm thick.

Project No. 7.3

Project name Feasibility Study, Fruit Conserving

Location Baharak, Jurm, Eshkashem and Zebak.

Definition Badakhshan is famous for its good fruits, especially apples, pears, cherries, apricots, almonds, walnuts and pistachio.

The marketing of these fruits should be promoted.

Before this can be done,

- the quantities of fruits available should be studied,
- the local consumption should be estimated,
- the feasibility of increased production should be studied,
- the suitability of these fruits for conserving purpose should be studied, and
- the location, size and type of conserving factory should be studied
- according to the results of these studies, an industrialization project should be designed.

Relation with Development Strategy Objectives

Fruit conserving would increase the cash revenue of the people and give them employment outside their farms.

Description of the Project Objectives

The objective of this survey is to provide any kind of information that is needed for starting a small or medium-sized conserving industry in Badakhshan.

<u>Costs</u>	Expert in Fruit Conserving Industry	Afs.	US\$
	4 months	800 000	16 000
	Afghan Assistance	30 000	600
	Local Transports	30 000	600
	Total	860 000	17 200
		=====	=====

Duration 4 months, before 1980.

Responsibility

The Ministry of Mines and Industries, Division of Industries.

Project No. 7.4

Project name Survey of Tourist Potential in Badakhshan

Location Badakhshan (especially Baharak Alakadari, Whakhan Alakadari)

Definition and Relation to Development Strategy Objectives

Tourism should become one of Afghanistan's major sources of foreign revenue, and, in order to accomplish this, private tourist companies should be encouraged.

Reason: Tourism is a face-to-face service, and only competitive private companies can give constant quality to consumers. Badakhshan could become the Switzerland of Asia, and many other projects directly relate to the development of tourism; including improved roads, communications, air services, etc.

Description of Project Objectives

To determine how tourism can be expanded in Badakhshan. Current programme such as the Marco Polo sheep hunts directed by the Afghan Tourist Organization) should be examined, but the introduction / or expansion of the other specialized programmes should be explored: mountain climbing, trekking and camping, trout fishing, bird watching tours, wild flower collecting tours, scenic photography excursions. With an improvement in the overall infrastructure, tourists will naturally gravitate toward Badakhshan, and in preparing for such an influx, Afghanistan will be able to maximize prospects for high-fee tourism and minimize tourist inconvenience, particularly if properly organized companies (also properly taxed) are given a free hand.

Phases of Implementing

An Afghan specialist from the Afghan Tourist Organization plus a foreign specialist - should make a one-month survey of Badakhshan to find out what is required for expanding the present facilities. Another month will be required to prepare a final report and recommendations. Therefore, two months' time for one Afghan and one foreign specialists should be sufficient.

<u>Costs</u>		Afs.	US\$
	Expert in tourism promotion		
	2 months	400 000	8 000
	Afghan Assistance 2 months	15 000	300
	Local transports	<u>15 000</u>	<u>300</u>
	Total	430 000	8 600
		=====	=====

Duration Two months.

Responsible Afghan Organization

Afghan Tourist Organization.

UNFDAC

Project No. 8.

Project name Treatment programme for opium addicts in Badakhshan

The programme includes detoxification, follow-up and - if necessary - opium maintenance for addicts as well as general health care and medical treatment for the addicts and their families, as opium abuse is closely linked to non-existent or insufficient medical care, opium being the only drug available for a large part of the population.

All facilities needed for the implementation of this treatment programme will gradually and ultimately serve as centres for medical care in the target areas.

Target areas with a high incidence of opium abuse and a vacuum of medical care are: Baharak, Eshkashem, Zebak, Munjan, Sheghnan and Darwaz, Wakhan and Pamir.

1.
Costs of establishing the treatment facilities

1.1. Treatment centre and headquarter

<u>Location</u>	Barak
<u>Capacity</u>	100 bed hospital (84 male, 16 female)

1.11 Buildings

1.111	Two storey hospital building		
	25 patient rooms, 20 m ² each	500 m ²	
	service rooms, offices	500 m ²	
	out-patient clinic, pharmacy. laboratory	<u>500 m²</u>	1 500 m ²
1.112	Living quarters separately for foreign expert, Afghan doctors and auxiliary personnel		<u>1 000 m²</u>
			2 500 m ²

<u>Calculation</u>	\$ 75,-/m ² plus supplementary costs for transportation to Badakhshan amounts to \$ 100,-/m ²	US\$ 250 000.-
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1.12 Land

Area of ca. 10 000 m² = governmental contribution.

Treatment programme for opium addicts in Badakhshan

Proposals for Governmental Contribution

1. Land for treatment centre in Barak
Land for sub-centres in Zebak, Wakhan, Sheghnan,
Darwaz, Munjan
2. Afghan personnel (8 doctors, auxiliary personnel)
3. Maintenance (gasoline, power supply etc.)
4. Training of personnel in Afghanistan
5. Travel expences for Afghan personnel
6. Food for in-patients
7. Afghan-made drugs
8. Opium for opium maintenance
9. Outfit: locally made (furniture, sheets, tools)
10. Rehabilitation atelier (workshop)

Not to be included in the general health budget

In the short-term, it is extremely difficult to achieve all these goals.

For the distribution of revenue to the most remote areas, the RDD and World Food Programmes are supposed to be strongly supported. This is necessary especially for the compensation of the limitation of opium cultivation in the short-term.

When thinking about how to increase the revenue, the easiest sectors are apparently animal husbandry and crop production, where the traditional skills can be improved by the use of more sophisticated methods.

In the internal prioritisation between projects and programmes within these sectors, better priority has been given to those proposals which seem to give the best return on investment. Short-term impact has been prioritised before long-term impact.

The revenue may be diversified by improving other productive activities. Handicrafts marketing has a high priority because there is an existing organization to implement it immediately, although the total impact is relatively small. The handicrafts promotion programme will be a responsibility of the rural development center (BARD), and in the long term this will probably lead to the establishment of small-scale industries.

Fruit conserving would be possible to start after a feasibility study.

Other productive activities in addition to the above-mentioned, as e.g. the establishment of a slaughter house, need either more exact data to be collected over a longer period or a more developed physical infrastructure before they can be started. Therefore, in this report, the development of these activities is supposed to be the responsibility of the development organization.

A summary of the projects for the development of productive activities is on page 14.

The Republic of Afghanistan · Ministry of Planning

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VOLUME II Proposals for Development
Projects and Programmes

د افغانستان د پلانې وزارت

FINNCONSULT 1976

UNITED NATIONS
DEVELOPMENT PROGRAMME

THE REPUBLIC OF AFGHANISTAN
MINISTRY OF PLANNING

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UNITED NATIONS DEVELOPMENT PROGRAMME

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